museum
QL
671
C74

THE CONDOR

A Magazine of Western Ornithology

Volume XXXVII September-October 1935 Number 5

COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

Published Bi-monthly by the Cooper Ornithological Club

Entered as second-class matter May 15, 1925, at the post-office at Berkeley, California, under Act of Congress of February 28, 1925, Section 412, paragraph 4.

Issued from the Office of THE CONDOR, Museum of Vertebrate Zoology, Berkeley, California.

SUBSCRIPTION RATES

Three Dollars per Year in the United States, payable in advance.
Fifty Cents the single copy.
Three Dollars and Twenty-five Cents per Year in all other countries in the International Postal Union.

COOPER ORNITHOLOGICAL CLUB

Dues are payable in advance on January first for the calendar year: Three Dollars per year for members residing in the United States; Three Dollars and Twenty-five Cents in all other countries. Members whose dues are paid receive THE CONDOR without additional charge.

The Life Membership fee is Seventy-five Dollars. No additional dues are required, and the money is invested and the interest only is used for Club publications. Life Members receive The Condor without additional charge.

Send manuscripts for publication to the Editor, J. GRINNELL, Museum of Vertebrate Zoology, Berkeley, California, or to either of the Associate Editors, JEAN M. LINSDALE and ALDEN H. MILLER, same address.

Send dues and subscriptions to JOHN McB. ROBERTSON, Associate Business Manager, Buena Park, California; orders for back numbers of THE CONDOR and the PACIFIC COAST AVIFAUNA series to W. LEE CHAMBERS, Business Manager, 2068 Escarpa Drive, Eagle Rock, California

Issued September 16, 1935

CONTENTS

PAGE

Experiences with Prairie Falcons (with two ills.) ..... *Wright M. Pierce* 225

Over-populations and Predation: A Research Field of Singular Promise ..... *Paul L. Errington* 230

An Analysis of the Bird Population in the Vicinity of Rupert, Idaho ..... *William B. Davis* 233

Notes on Birds in Death Valley ..... *M. French Gilman* 238

Bird Records from the Tucson Region, Arizona ..... *Charles T. Vorhies, Randolph Jenks,* and *Allan R. Phillips* 243

Comments upon the Subspecies of *Catherpes mexicanus* (with one ill.) ..... *J. Grinnell* and *Wm. H. Behle* 247

The Rancho La Brea Wood Ibis (with one set ills.) ..... *Hildegarde Howard* 251

FROM FIELD AND STUDY

A Note on the Color of the Eye of the Bush-tit ..... *A. J. van Rossem* 254

Some Observations on the Feeding Habits and Eye-shine of the Poor-will ..... *Amelia Sanborn Allen* 254

Glaucous Gull on the British Columbia Coast ..... *J. A. Munro* 255

The English Skylark on Vancouver Island ..... *Theo. H. Scheffer* 256

The Charleston Mountain Blue-fronted Jay at Castle Dome, Yuma County, Arizona ..... *Laurence M. Huey* 257

Bush-tits "Shadow-boxing" ..... *John McB. Robertson* 257

Status of *Toxostoma redivivum* in the Rancho La Brea Fauna ..... *William L. Engels* 258

Some Feeding Habits of the Western Sandpiper ..... *Adolph Murie* and *H. D. Bruce* 258

Magpie-jay Robs Nest of Derby Flycatcher ..... *Austin Smith* 259

NOTES AND NEWS 259

Mrs. Dickey on Southwestern Birds ..... *Alden H. Miller* 260

Henry W. Carriger (portrait) 261

MINUTES OF COOPER CLUB MEETINGS 261

THE CONDOR

A Bi-monthly Magazine of
Western Ornithology
Published by the
Cooper Ornithological Club

VOLUME XXXVII | SEPTEMBER-OCTOBER | NUMBER 5

EXPERIENCES WITH PRAIRIE FALCONS

WITH TWO ILLUSTRATIONS

By WRIGHT M. PIERCE

The Prairie Falcon is without doubt the wildest and fiercest bird of our western deserts. It is the light colored cousin of the Duck Hawk, that dark fellow which nests sparingly along the coastal slopes. Possibly this latter bird has more dash and speed than the falcon, but I rather doubt this after having seen both at their nesting sites for many seasons. Both species are exceptionally zealous in the protection of their nests and young; and to have either fly toward one with terrific speed and angry fierce cries and lightning-like swoops, gives a thrill never to be forgotten. Both forms are closely related to European and Asiatic species that have been used for generations in the royal sport of falconry.

I admire these birds for their speed and courage and for their marvelous demonstrations of flight maneuvers that I have been privileged to see; and a feeling of sadness comes over me when I realize that these wonderful birds have been so much reduced in numbers in the last few years. Some day, before it is too late, I hope the general public will wake up and realize that just because a bird is a hawk is no reason that it should be ruthlessly exterminated. No doubt these birds do some harm, but scientific study has proved that their good traits far overbalance their bad habits. When they are gone and something far worse has come upon us, for nature always compensates, we will pray for the Prairie Falcon's cry on the desert and for the scream of the royal Duck Hawk in its native home. But then, sad to say, it will be too late and man will repent of his folly.

However, this spring I discovered a nest of the Prairie Falcon (*Falco mexicanus*) in an out of the way, rugged desert canyon, where mountain sheep occasionally wander, and whose walls were fashioned from sheer rough cliffs, hundreds of feet in height. In this wild, secluded section the birds had chosen a nearly flat shelf, in a crevice near the top of one of the highest rocky domes, upon which to lay their eggs; for these falcons build no nests. As my friend and I entered this canyon, some quarter of a mile from the nesting site, we were met by the female with angry cries and tremendously fast dashes; for it is the female bird of this group that is always the larger and the one that does most of the fighting in the protection of the nest. Her scream is the louder and more hoarse; the male usually stays farther away and with weaker, more high-pitched notes, seems to be encouraging his more valiant mate.

This nest held five young, four females and one male, nearly ready to fly. As we went over the top toward the nest, one of the youngsters took off and flew rather unsteadily to a cliff across the gorge. All the while the old female was making furious noisy dashes at us, sometimes too near for comfort, while the young were giving us a furious battle with both beak and talons. They could strike with their talons like lightning, and even though we were cautious we received several deep scratches on our hands and arms. They did not seem to tame at all and by their fierce angry cries they expressed their hatred of us in falcon language. Finally,

Fig. 44. Portrait of Prairie Falcon, the wildest and fiercest bird of our western deserts.

finished with our moving pictures and stills, we placed them all back into the nesting cavity with the exception of the male. This bird, even though he did not seem to have any better disposition than the others, I carried home for further study and with the hope that I could succeed in taming this wild desert fellow.

At first he refused to eat and met me with beak and talons and angry screams. However, after I had forcibly fed him for a day or two and handled him continually, my falcon gradually quieted down and began to eat by himself. For food I gave him raw beef, not chopped up, for he would not eat ground meat. One day he was offered an English Sparrow and this he pounced upon at once. This is interesting since all we found in and about the nesting site were the remains of chuckawallas, large desert lizards that abound in the haunts of these birds. Perhaps his parents had occasionally fed him birds, as there were many of them in the little canyon below the nesting cliff, but there was no evidence of such food about the nest.

Within a few days our bird seemed to recognize all of my family, and now his beak was used more in play than in anger. He gently pecked at our fingers and soon became the family pet; even my small children carried him about on their hands and, while his talons were extremely sharp and sometimes scratched a little as he held on, he did not use them maliciously. When put into the cage in the early morning, after spending the night in a safe place in the house, for we were afraid

Fig. 45. Prairie Falcon: He watches intently all small birds that fly by his cage.

that some marauding cat would frighten our falcon, he seemed to want exercise. Twisting his head from side to side until one wondered if he would not disjoint

it, he would jump around on the floor of his cage, grabbing stones, sticks, a ball or a piece of paper, throwing each about in turn, shaking his head and flapping his wings. During these maneuvers he moved so quickly that his muscles seemed to be coiled springs and his neck to be made of rubber. Anything that could be torn apart seemed to delight him; the paper was torn into bits and soon a rubber ball was in small pieces.

Always after these stunts he was ready for breakfast. He grasped his food with his talons and held it tightly while he deliberately tore it into small bits with his powerful hooked beak, before he would eat it. He would carefully pick away the primaries and tail feathers of birds and then devour in small mouthfuls all that remained, even the bones, feathers and entrails. After two months I have never found a regurgitated pellet, for even in the wild, falcon pellets seem to be unusual. I have seen what I thought to be such on rare occasions about their nests. When food was given to the bird he usually grabbed it with his beak but would immediately transfer it to his talons.

A small gun was used to shoot English Sparrows for the falcon, and it was not long until the bird appeared to associate the report of the gun with food. Immediately, especially if he were hungry, he would jump up and down on his perch, flapping his wings all the while, intently gazing at the fallen sparrow, and when I reached the cage he was at the gate awaiting me, and seizing the bird he would utter a few satisfied croaks.

The cage of our bird was in the backyard and he would watch the youngsters at play with apparent interest and enjoyment. At his first sight of a dog, a small white one, he seemed extremely frightened, fluffed up his feathers and screeched angry warnings. This dog was a neighborhood pet and very shortly our bird came to recognize him and simply watched with piercing staring eyes when the animal came near. However a black Spaniel once came into the yard and this appeared to drive our pet mad; he screamed and tried to get away and ever since has shown a great dislike for any black or dark colored dog.

One day, unthinkingly, I approached the cage wearing large dark colored amber glasses; the falcon was nervous and by his actions did not appear to know me. He calmed down as soon as I removed the glasses.

Gophers and toads were scorned; once and only once, did he bite at a small toad and the taste appeared to be repellent to him. When he was younger, I had offered him a snail which he did not appreciate at all; he merely bit at it and the taste seemed to be repulsive, for he spent at least five minutes opening and closing his mouth and rubbing his beak on his perch. It is interesting to note that a young Sparrow Hawk, which I had captured, seemed to enjoy immensely a snail that I fed him. Apparently the tastes of these two hawks are quite different.

Strangely, the sight of two pet desert tortoises nearly drove our bird crazy. It seems unusual that this bird, a native where these reptiles live, should have been so frightened. This was one reaction that has remained a puzzle to me. One afternoon I gave him a small lizard. This he seemed to relish, as he ate it with much gusto. Later, I offered him a larger garden lizard, which he appeared to fear, and he would have nothing to do with it. Now this last lizard was even smaller than the chuckawalla, his principal food as a nestling on the desert. This reaction was also a mystery that I have not yet solved. Bright lights and unusual sounds bothered our bird and he would become very nervous. He even fought and scratched a red flower pot which I accidentally placed in his box one morning. However, after a few minutes he became accustomed to this and paid no more attention to it.

One morning a friend brought a young Sparrow Hawk that could just fly, which I put into the cage. Unafraid, the little hawk sidled up to the falcon, who turned his head from side to side and over backward and studied and stared at his cage mate from every angle for some time but did not offer to strike or harm the smaller bird. After a few minutes the little fellow crawled through the wire and escaped, so that this experiment was soon terminated, excepting that the mother Sparrow Hawk fought the falcon for days. However, our bird did not seem to be bothered a great deal by the swoops and cries of the angry hawk, even though the Sparrow Hawk's wings hit the cage several times in her mad dashes. Our pet simply watched the performance with a rather bored attitude.

Many airplanes cross above our home each day and my falcon would peer at each one from the time it came into view, turning his head sideways and intently looking, until it disappeared in the opposite direction. He studies intently all small birds that fly by his cage, perhaps wishing that he could have a chance to catch them. One day he somehow escaped, but was found sitting quietly on top of his cage. He willingly stepped onto the hand my wife offered him and seemed pleased to get back to his own perch. When taken from his inside sleeping quarters to his open wire cage, he struggles and squirms and is so anxious to get into his cage that he willingly crawls through a small opening in the wire. I have never seen him trying to find a way out, though, at times, when frightened he flies against the side of his cage. When sleeping, he does not put his head under his wing, as many birds do, but fluffs out his feathers and, sitting low, seems to pull his head almost out of sight between his shoulders. Though he partly closes his eyes and appears to doze he seemingly never really sleeps in the daytime. On moonlight nights he faces the moon; his eyes always seem to be open and he seems very alert even then.

I have carried him for many hours in a box in the car and exhibited him before several groups of people. So far, my falcon has behaved perfectly, although one day when I tied a string to his leg, he became furious and attempted to bite and claw me. However, he calmed down as soon as I removed the cord. Our bird enjoys the freedom that we give him in our home, flying from the table to the moldings on the walls or to the top of a door or even to our shoulders or even onto our heads. Not one of us is bald as yet, so we rather enjoy this last action. With us he is extremely docile and gentle. But one day, he clamped his sharp beak onto the finger of a stranger who tried to be friendly with him. He bit so hard the wound spurted blood. Now I am sure that he recognizes my whole family, and believe that he really enjoys our company.

One hot day, thinking to give our pet a drink, I placed a large pan of water in his cage. At once he dropped into the dish and proceeded to bathe much as a waterbird would. He jumped up and down in the water, flapped his wings, ducked his head under the water and seemed so at home that I wondered for a moment if he had turned into a duck. However, he was a very sorry, bedraggled looking falcon when he finally hopped onto his perch to dry and preen his soaked feathers. He had become so very excited about all this that he trembled for several minutes, but, as the day was hot, I am sure he could not have been cold. He has had several baths since and they still always seem to please and excite him. Now I have been wondering how he knew about this bath business; certain it is, in his dry desert home this bird had had no experience with water. We must certainly put this reaction in the instinctive group.

On warm days he sits on his perch with wings partly spread and when the weather is very hot he often spends hours standing on the ground which is the

coolest location, especially as the cage is often cleaned with water and is damp. It did not take our pet long to locate this cool spot.

A summer trip to a new home in the mountains brought strange experiences for our bird. At first robins, jays and chickadees which scolded about his cage seemed to bother and worry him considerably. When I went to the cage to see what all the fuss was about, I found the bird nervous and trembling. However, in a day or so he adjusted himself to the new environment, and the strange birds with their new notes failed to worry him any more. He simply sat and intently watched them. Apparently tiring of looking, he would yawn and then stretch his wings out at full length; then grasping his perch tightly he would furiously flap his wings for several moments. Nevertheless he was probably again wishing that he could escape, if only for long enough to make one quick stab at his tormentors.

In taming this wildest of desert birds our experiences as a whole have been exceedingly satisfactory. We have learned much about the life habits of this comparatively rare species, that would have been almost impossible to learn in any other way. And while I watch our bird in his cage, intently gazing at the great out-of-doors, and think that perhaps I should give him his freedom, I stop to wonder if he is not better off where he is. For I remember the fate of three young falcons that we came to know and banded a few years ago. Within a few weeks all had been reported as shot. Probably my falcon is better off as he is. Either way the life of these royal birds is not just all that we wish it could be.

Claremont, California, April 9, 1934.

OVER-POPULATIONS AND PREDATION: A RESEARCH FIELD OF SINGULAR PROMISE

By PAUL L. ERRINGTON

Recent publication (Errington, Ecology, 15, 1934, pp. 110-127) has been made of evidence supporting a modification of the broad principle advanced by McAtee (Smithsonian Misc. Coll., 85, 1932, p. 141) that "predation tends to be in proportion to population" and later restated by him to conclude " . . . the proportion, however, rising and falling progressively with the increase or decrease in numbers of the available food organisms" (Proc. Roy. Ent. Soc. London, 81, 1933, pp. 113-126). McAtee's emphasis upon availability of prey being the chief factor governing the food habits of predatory species has been particularly substantiated by our ecological studies on bob-white (*Colinus virginianus*) in the north-central United States.

McAtee, summarizing the results of a tremendous amount of research (80,000 bird stomach examinations) in a short statement, neither intended nor attempted to discuss in full detail the food habits of, or the effects of predation on, any individual species. From the standpoint of a concise generalization pertaining to predators and prey as a whole, McAtee's principle of proportional predation may be about as close to the truth as we are capable of approaching.

Fundamental as this may be, we need further amplification of predator and prey relationships to give a clearer insight into the mechanics of predation. Its exceptions, its modifications, its pertinent corollaries, within the limits of our know-

ledge and our capacities for investigation, are in need of a great deal more scientific sorting and digestion than they have thus far received. In the case of the bob-white, availability as prey to predatory species is not necessarily in proportion to population, an inevitable conclusion to be drawn from existent field data (Errington, Trans. Wis. Acad. Sci. Arts Letters, 28, 1933, pp. 1-35). We have, for bob-white, recorded winter survivals of strong populations with very little loss from natural enemies.

Material or heavy predation upon vigorous adult winter bob-whites appeared largely confined to that proportion of the population which was in excess of the capacity of the environment properly to accommodate. Aside from those that may have been weak, injured, or individually handicapped from some similar cause, the birds that bore the brunt of predation were the ones situated in inferior or overcrowded habitats and hence dangerously exposed to attack by reason of their insecurity of position.

Incidental or accidental predation (distinguished from "material" predation) attending well-situated populations, as measured to date, has been so low (rarely greater than 6% per 90 days) that it probably has not greatly exceeded what would have been the natural winter mortality from age alone had there been no predators.

So far as we have been able to ascertain, the apparent definiteness of maximum winter carrying capacity of a given environment for bob-white is governed by the quality and distribution of food and cover and by the intolerance of the bob-white, as a species, toward overcrowding. As populations ascend past the maximum carrying capacity of the land, they become vulnerable to predation in proportion to their *surplus,* seemingly irrespective of kinds and numbers of predators ordinarily present.

We have fragmentary evidence that this type of population vulnerability—or population security, if one wishes to think of it in that light—applies to species other than bob-white under winter conditions. Indeed, it conceivably may apply to many species showing territorial intolerance as non-breeding adults. (Territorial intolerance in the breeding season should probably not be considered in connection with the present discussion because of the variables introduced by mating behavior.)

Perhaps many species not showing any conspicuous territorial intolerance may have population levels at which they are no longer materially vulnerable to predation, or, in other words, are rendered unavailable to predators by virtue of their security of position. I would suspect that any one of numerous species may have a virtually ineradicable residuum which would not have to be a small residuum. We have records of bob-white populations as substantial as a bird per four acres—about the highest density that we have been able to census with desired accuracy—being so well situated as winter adults as to be practically untouchable by natural enemies, including those known to be of formidable types.

From this it may be justifiable to suggest that McAtee's principle might be more truly applicable to *overpopulations* rather than simply to populations as they may occur in nature. But then the question may arise if the greater part of most distinctly mobile populations (or those capable of movement into better grades of habitats) may not in actuality be more or less overpopulations for their particular environmental niches, except probably for species that have been reduced to low densities on account of exploitation or persecution by man, or on account of epizootics, storms or other drastic though possibly temporary or unusual emergencies.

Apart from populations consisting mainly of immature animals which exhibit varying degrees of helplessness, I think that conspicuous invertebrate populations especially, and populations of the more prolific vertebrates, may often be essentially over-populations. In the latter event it may not make a great deal of difference

whether one may say that predation is in proportion to population or to overpopulation.

It may make vastly more difference which is the case, however, in the true evaluation of the role of predation in the life history of a given prey species. If the prey species is of exceptional esthetic, scientific or economic consequence, the problem of either management or control could very well be simplified by a better understanding of the extent to which the pressure of its natural enemies may be significant or only incidental or immaterial.

Here is a research field barely scratched and a field of almost endless potentialities. It is a field to demand the utmost in investigational background, ecological technique, ingenuity, and interpretation. Its difficulties constitute a challenge, as does its basic importance to a balanced human society.

What do we know about what *actual* effect predation may have upon animal populations? What is the *actual* effect of increase or reduction in numbers of given predatory species, from the standpoint of animal populations? The obvious trend of modern ecological data is toward the conclusion that predation does not play nearly the part in determining population levels of wild species as was thought a comparatively few years ago.

The productivity of the Scottish grouse moors under intensive management is well known; and well known also is the stringent suppression of predators practiced in connection with management there. To predator control is attributed much of the productivity, but logical questions may be asked as to how much may be due to the constant persecution of predators and how much to the raising or maintaining of the general habitability of the environment so far as concerns food and cover, or how much may be due to something else, perhaps to something totally unrelated to conscious management.

It is safe to say that we know next to nothing about the effects of predation upon population in the overwhelming majority of instances to which has been paid any critical attention at all. Scientifically acceptable facts on this subject are rare, and rarer still are those from which have been extracted more than their most superficial meaning. It is not necessarily true that A would be abundant if B were scarce, simply because B preys upon A.

The all inclusive "anti-vermin" complex of some sportsmen, with its extravagances and its dogmas, is but one manifestation of our lack of knowledge, whatever else it may be in analysis. The perennial controversies among scientists themselves point to a continued need of studying predation both from the standpoints of predator and of prey; if possible, simultaneously and in the same areas and under conditions favoring the acquisition of salient ecological data.

Iowa State College, Ames, Iowa, June 29, 1935. [*Journal Paper number J236 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project 330.*]

AN ANALYSIS OF THE BIRD POPULATION IN THE VICINITY OF RUPERT, IDAHO

By WILLIAM B. DAVIS

Less than thirty years ago the area under consideration—the northern half of the Minidoka Irrigation Project, Minidoka County, Idaho—was virgin land, the haunt of the coyote, badger and Sage Hen, a land of drifting sand and sage. But great changes were initiated by that "life-giver of the desert," water; and within a few years a thriving agricultural community had been established. The bird population, faced with these changing conditions, kept pace in its transition with that of the environment. New kinds appeared; others faded from the picture. Kenagy (Condor, 16, 1914, pp. 120-123) and Davis (Murrelet, 4, 1923, pp. 3-4) have pointed out some of the alterations that took place.

It is my plan to analyze the native bird population as it appeared to me during the years 1919-1921. The data for this study consist of sight records made during those years plus examination of certain specimens as indicated below. These data are not as complete as one might desire, but records were kept of dates of arrival, departure and nesting. I believe that they show the general trend of the population activities. For convenience, the population has been divided into five groups: Permanent residents; regular migrants (those species of which no individuals stopped to nest); summer visitants; winter residents; and those of erratic (irregular) occurrence. It is of importance to point out that the area is entirely within the Upper Sonoran Life-zone; that the area was, as it is now, given over to agriculture, hay and potatoes being the chief products; that no large *native* trees are in the area; and that the closest mountains are twenty-five miles to the south. The Snake River, with its native riparian growth of willow, bounds the area on the south. For a more extended account of the topography see Kenagy (*loc. cit.*). Names here employed are those of the A. O. U. Check-list, 4th ed., 1931.

RESIDENT SPECIES

Since these birds were encountered during every month of the year, only data giving the earliest nesting date and the latest date when young were found in the nest are given (in the order mentioned). Specimens of all of these species were examined.

Species	Eggs	Young
Treganza Great Blue Heron	June 1	June 30
Common Mallard	May 2	July 7
Gadwall	May 19	.....
Marsh Hawk	May 19	.....
Sparrow Hawk	May 2	May 31
Killdeer	May 6	.....
Wilson Snipe	.....	.....
Long-eared Owl	April 17	June 10
Short-eared Owl	May 19	.....
Western Belted Kingfisher	May 27	.....
Red-shafted Flicker	May 20	.....
Desert Horned Lark	.....	May 2
Black-billed Magpie	April 11	June 6
Western Meadowlark	May 2	.....
Nevada Redwing	May 19	June 1
Brewer Blackbird	May 13	Aug. 1
Willow Goldfinch	.....	Aug. 12
House Finch	April 28	.....
Mountain Song Sparrow	May 19	.....

REGULAR MIGRANTS

Only species observed during at least two of the three years are included in this class. Dates of first and last records for each species, for both spring and fall migrations, are given for each of the three years. The fall of 1921 is not included because I was not in the region. *==specimens examined or taken.

Species	1919 Spring	1919 Fall	1920 Spring	1920 Fall	1921 Spring
*Red-throated Loon	Apr. 20	.....	Apr. 14	.....	May 19
	May 7				May 21
*Farallon Cormorant	May 6	Sept. 1	.....	Aug. 1	May 19
		Nov. 4		Sept. 5	
*Canada Goose	Mar. 23	Oct. 30	Mar. 23	.....	.....
		Nov. 4	Apr. 6		
Black Brant	Mar. 21	Oct. 27	.....	Oct. 13	.....
	May 7				
*Shoveller	Apr. 11	Sept. 1	Mar. 21	Oct. 13	May 19
	June 10	Nov. 4	May 31		
Redhead	Apr. 15	.....	Apr. 14	.....	May 19
			May 31		
Canvas-back	Mar. 20	.....	May 31	.....	Apr. 11
*Buffle-head	May 6	Oct. 30	.....	Nov. 15	May 19
Sandhill Crane	Mar. 3	.....	Mar. 13	.....	.....
Greater Yellow-legs	.....	Sept. 4	Apr. 11	Sept. 4	.....
			Apr. 17		
Lesser Yellow-legs	.....	Sept. 1	.....	Aug. 25	.....
		Sept. 4			
*Least Sandpiper	.....	July 7	.....	Aug. 1	.....
		Sept. 4			
Caspian Tern	May 6	.....	May 1	.....	Apr. 29
Rufous Hummingbird	.....	Aug. 20	.....	Aug. 14	.....
		Sept. 7		Sept. 5	
*Wright Flycatcher	May 5	.....	May 6	.....	May 19
			May 20		
Western Flycatcher	May 15	.....	May 27	.....	May 26
			May 31		
Western Wood Pewee	May 6	.....	May 9	.....	May 19
	May 13				
Red-breasted Nuthatch	.....	Aug. 12	.....	Sept. 10	.....
		Sept. 7			
Audubon Hermit Thrush	May 12	.....	May 7	.....	.....
Western Ruby-crowned Kinglet	Apr. 19	.....	Apr. 6	.....	Apr. 12
Red-eyed Vireo	May 17	Sept. 1	May 20	.....	May 6
Western Warbling Vireo	May 17	.....	May 20	.....	May 19
Audubon Warbler	May 6	.....	May 2	.....	May 19
	May 13		May 18		
Pileolated Warbler	May 13	Sept. 4	May 16	Sept. 10	May 30
		Sept. 11	June 4		
Lazuli Bunting	Apr. 21	.....	May 23	.....	May 6
Gambel Sparrow	Mar. 20	Sept. 16	Mar. 13	Sept. 20	Apr. 12
	May 13		May 18		

SUMMER VISITANTS

Records for this class represent: (1) Earliest record of occurrence in the spring; (2) latest record in the fall; (3) "fresh egg" records.

Species	(1)	(2)	(3)
Horned Grebe	Apr. 11	Oct. 27	.....
Western Grebe	May 19	Sept. 30	June 7
White Pelican	May 19	Oct. 30	June 7
Black-crowned Night Heron	May 2	Sept. 4	May 30
American Bittern	Apr. 11	Sept. 4	.....
Baldpate	Mar. 20	Nov. 15	.....
American Pintail	Mar. 20	Nov. 30	May 19

Cinnamon Teal	Apr. 6	Oct. 30	May 19
Ruddy Duck	Apr. 11	Sept. 16	.....
Osprey	Apr. 11	Sept. 4	May 19
American Coot	Apr. 11	Nov. 4	May 31
Spotted Sandpiper	May 6	Sept. 4	June 7
Western Willet	May 1	Sept. 18	May 21
Avocet	Mar. 21	Sept. 20	June 7
Black-necked Stilt	Apr. 13	Sept. 28	May 31
California Gull	Mar. 28	Nov. 4	.....
Forster Tern	May 1	Sept. 9	June 7
Mourning Dove	May 1	Nov. 14	.....
Burrowing Owl	Mar. 21	Sept. 28	Apr. 20
Western Nighthawk	Apr. 29	Sept. 10	July 15
Eastern Kingbird	June 12	Sept. 7	.....
Arkansas Kingbird	May 9	Oct. 10	July 1
Say Phoebe	Mar. 23	Sept. 29	May 31
Traill Flycatcher	May 9	Oct. 1	.....
Bank Swallow	Apr. 6	Sept. 5	May 19
Barn Swallow	May 2	Sept. 8	June 6
Cliff Swallow	Apr. 20	Sept. 10	May 7
Western Marsh Wren	Mar. 13	Oct. 2	May 20
Sage Thrasher	Apr. 11	Sept. 20	June 4
Western Robin	Feb. 27	Nov. 1	May 6
Yellow Warbler	May 9	Sept. 3	June 17
Mountain Bluebird	Mar. 9	Oct. 3	May 6
Loggerhead Shrike	Feb. 18	Nov. 6	May 20
Yellow-headed Blackbird	Mar. 29	Sept. 18	June 28
Bullock Oriole	May 6	Sept. 4	June 1
Nevada Cowbird	May 13	.....	May 6
Savannah Sparrow	Apr. 11	Sept. 16	June 2
Western Vesper Sparrow	Apr. 6	Nov. 4	May 20
Western Lark Sparrow	May 7	Sept. 29	May 20
Brewer Sparrow	Apr. 11	Sept. 4	May 31
Western Chipping Sparrow	Apr. 11	Oct. 2	May 20

REGULAR WINTER VISITANTS

Records for this class represent: (1) Earliest fall record; (2) latest spring record. *=specimens examined.

Species	(1)	(2)
*Green-winged Teal	Oct. 30	May 2
*Lesser Scaup	Oct. 30	May 31
*American Golden-eye	Oct. 30	May 19
*Barrow Golden-eye	Oct. 7	May 7
*Hooded Merganser	Nov. 6	May 19
*American Merganser	Oct. 12	Apr. 14
*Red-breasted Merganser	Sept. 4	May 27
Sharp-shinned Hawk	Oct. 30	Jan. 13
American Rough-legged Hawk	Nov. 7	May 11
*Saw-whet Owl	Dec. 18	Apr. 17
*Red-naped Sapsucker	Oct. 3	Apr. 10
American Raven	Oct. 27	May 19
Western Crow	Oct. 27	Apr. 7
*Piñon Jay	Aug. 12	May 20
*Long-tailed Chickadee	Jan. 1	Mar. 25
Mountain Chickadee	Jan. 13	Mar. 25
Junco (sp.?)	Sept. 7	May 13
*Western Tree Sparrow	Oct. 13	Apr. 11

All birds for which single or few records are available have been placed in a separate list. These are erratic (irregular) in occurrence. The size of this class is due to at least two factors: (1) The birds are truly erratic in their occurrence, and (2) the fact that a majority of the observations were made within a comparatively small area, about sixteen square miles. Thus, birds that may really belong to one or more of the other classes are, perhaps, not given proper recognition. For example:

The Nevada Sage Sparrow, a common summer visitant to the sage deserts north of Rupert, was recorded only once in the area studied. Because of this restriction of territory, one does not get a clear conception of the region in southern Idaho as a whole. Studies such as this have their value in that they show the nature of bird populations in definite areas and environments. In the light of conditions in the general region, these erratic records could be classified as applying to summer visitants, winter visitants, or migrants. However, they are here treated as one class.

BIRDS OF ERRATIC OCCURRENCE

Eared Grebe, August 1, 1920; Pied-billed Grebe, May 15, 1918; Brewster Egret, one specimen examined September 16, 1919; Hutchins Goose, common in the grain fields during the autumn and early winter of 1921, specimens examined; Cackling Goose, one specimen killed by a hunter in September, 1921, was examined and measured; Blue-winged Teal, June 10, 1919; Greater Scaup, one definite record, a dead bird found March 28, 1920; Swainson Hawk, October 30, 1919; Cooper Hawk, April 11, 1919; Golden Eagle, April 11, 1919; Prairie Falcon, October 31, 1919; Sage Hen, March 29, 1919; Long-billed Curlew, May 31, 1920; Western Solitary Sandpiper, April 9, 1920; Stilt Sandpiper, May 13, 1919; Marbled Godwit, August 1, 1920; Hudsonian Godwit, July 7, 1919; Sanderling, May 19, 1921; Wilson Phalarope, May 13, 1919; Northern Phalarope, May 13, 1919; Pomarine Jaeger, one specimen killed on the Snake River, September 4, 1919; Black Tern, May 19, 1921; California Cuckoo, May 16, 1918. (Nests of the last bird have been found by Dr. Fayre Kenagy in the near vicinity of Rupert; but even so, its occurrence is quite erratic.)

Broad-tailed Hummingbird, May 27, 1920; Rocky Mountain Hairy Woodpecker, April 17, 1920; Olive-sided Flycatcher, September 7, 1919; Violet-green Swallow, May 11, 1919; Tree Swallow, May 27, 1921; Western House Wren, April 29, 1920; Rock Wren, May 19 and 27, 1921; Western Bluebird, August 14, 1920; Townsend Solitaire, May 9, 1920; Cedar Waxwing, March 21, 1920; Townsend Warbler, September 4, 1919; Macgillivray Warbler, April 29, 1920; Long-tailed Chat, May 17 and 31, 1920; Western Tanager, September 7, 1919; Rocky Mountain Grosbeak, July 7, 1919, and May 27, 1921; Western Evening Grosbeak, February 29, 1920; White-winged Crossbill, specimen examined that was taken December 18, 1919; Lark Bunting, May 29, 1921; Nevada Sage Sparrow, specimen taken May 19, 1921; Slate-colored Fox Sparrow, April 9, 1920.

In glancing over the above list of erratic species, one is impressed by the large number of migrants (for the general area) of the passerine type. What explanations are there for this phenomenon? From a geographical point of view, it seems that the main migration routes to Idaho from the south, and *vice versa,* should be by way of the western slopes of the Rocky Mountains, through Utah, Arizona, and Mexico, and secondly by way of the belt from the Blue Mountains in Oregon to the Sierra Nevada in California. It is conceivable that the intervening territory between these two routes, that is, the Great Basin, may present factors favorable for a limited migration, but I believe that the above-mentioned routes will be found to be the ones most used. The fact that fewer species of regular migrants (those that appeared regularly but did not stop to nest) for this area were noted than species of migrants erratic in their appearance, seem to indicate, at least, that Rupert is removed from the main migration route.

The other birds of erratic occurrence are chiefly water-frequenting forms that were observed on or near the Snake River; a smaller number are winter visitants; and the others are regular summer visitants in adjacent areas.

In all, 147 species of birds are recorded for this area, segregated as follows: Permanent residents, 19; regular migrants, 26; summer visitants, 41; regular winter visitants, 18; erratic in occurrence, 43. It is of interest to compare the results of this study with one made by R. H. Palmer (Murrelet, 9, 1928, pp. 28-38) in Bannock County, Idaho, during the years 1912-1917. The following chart is adapted from Palmer (*op. cit.,* p. 37).

Classes	Bannock County		Rupert	
1. Permanent residents	35	22%	19	17.7%
2. Summer visitants	91	57	41	39.3
3. Winter visitants	11	7	18	16.8
4. *Regular spring migrants*	*24*	*15*	*26*	*24.2*
Total recorded	*161*	....	*147 (including erratics)*	

In making this comparison, four factors must be kept in mind: (1) The comparative size of the areas under consideration. Bannock County, at that time, comprised nearly all of the southeastern portion of Idaho. The area in the vicinity of Rupert is considerably smaller; (2) Bannock County offers a variety of habitats —*mountain, meadow, farm land, streamside, marsh and lake. The area in the vicinity of Rupert is relatively flat, of sedimentary origin, and limited to such habitats as farm land, streamside, introduced deciduous trees, and marsh.* (3) The climate in the two areas is somewhat different. Bannock County is more mountainous, therefore it has more snow in winter and a more severe climate in general; the elevation averages higher by at least one thousand feet. (4) The large class of "erratic occurrences" is excluded, but even so, the total number of birds recorded for the area is the only factor affected, and it does not enter largely into the comparison.

With these facts in mind, let us examine the above table, and discuss the probable causes for differences. The diversity of habitats in the two areas explains readily the differences in classes 1 and 2. The milder, more open winters in the vicinity of Rupert will explain the features of class 3. However, the apparent similarity between the two localities as regards class 4 is misleading. The twenty-four migrants through Bannock County are truly northern-nesting forms: geese, ducks, shorebirds, some sparrows and others, which do not stop to nest in the area. (Species that migrate regularly through the region, but individuals of which stop to nest while others pass on, are here classed as *summer visitants.*) On the other hand, those that migrate regularly through Rupert are of two classes: (1) Truly northern nesters, and (2) those that ordinarily nest in the mountains in southern Idaho. Such birds as Wright Flycatcher, Audubon Warbler, Audubon Hermit Thrush, Western Ruby-crowned Kinglet, Western Warbling Vireo, Lazuli Bunting and Western Wood Pewee are migrants in the strict sense through Rupert, but they would be classed as "summer visitants" in the Bannock area because some individuals of the species nest there. This interesting fact lends weight to the hypothesis that the western flank of the Rockies is more of a regular migration route than the Great Basin proper.

It seems worth while to diverge a bit from the main thesis and report a few recent (1934) changes in the fauna of the Rupert area. Due to intentional further drainage of marshy areas and the excessive drought of the past few years, accompanied by a similar decrease in the amount of water available for irrigation (less than 50 % of the 1930 supply was available this year), a great reduction in available breeding grounds for marsh-frequenting birds has resulted. The most conspicuous change was in the number of Yellow-headed Blackbirds. In areas where they were common in 1919, there were a few this year; also fewer Coots, Avocets, Red-winged Blackbirds, Cinnamon Teal and Marsh Wrens were observed. However, some increases have taken place despite these adverse conditions.

During the past three years, Brewster Egrets have moved in and established themselves on an island in the Snake River near Burley. A small colony of several breeding pairs was visited this last June. This bird was first noted there in 1919. Black and Caspian terns seem to have increased greatly in numbers. A White-

faced Glossy Ibis was observed June 14 one and a half miles south of Rupert. This, apparently, is a new record for this area.

SUMMARY

A review of the bird population of a restricted area in the vicinity of Rupert, Minidoka County, Idaho, based upon observations during the years 1919-1921, reveals the presence of 147 species of birds.

This population is segregated into five classes as follows: Permanent residents, 19; summer visitants, 41; winter visitants, 18; regular migrants, 26; erratic in occurrence, 43.

The large number of erratic occurrences is explained by the hypothesis that Rupert is between two major migration routes; hence the frequent appearance of stragglers. Also, the limited size of the area studied resulted in erratic presence of birds whose natural habitats were adjacent, but not strictly within the area.

Comparison of the avifauna of Bannock County, Idaho, with that of the Rupert area revealed certain differences. Contrasts in size, topography and climate of the two areas (plus geographical location) probably explain these.

Recent (1934) changes in the avifauna are noted. Some species have decreased in numbers due to the drought and to the intentional drainage of marshy areas; Black and Caspian terns have increased. Brewster Egrets, first observed in 1919, have established themselves during the past few years; the appearance of the White-faced Glossy Ibis is recorded.

Museum of Vertebrate Zoology, Berkeley, California, November 16, 1934.

NOTES ON BIRDS IN DEATH VALLEY

By M. FRENCH GILMAN

A residence of more than six months in Death Valley, from October 23, 1933, to May 9, 1934, gave me unusual opportunity to study the bird life of the below-sea-level area. Adopting sea level as a limit to the area of operations as done by Joseph Grinnell in his articles, was a most logical idea. This limit has been adhered to (except where otherwise stated) in this report. As Acting Custodian of Death Valley National Monument my duties called for a somewhat general supervision of the area and necessitated many trips, these giving extra opportunities.

A feeding station for attracting wild animals was established near the overflow ponds nearly half a mile below Furnace Creek Ranch. This proximity to the ponds afforded a good chance to observe migratory water birds, particularly as trips were made almost daily to replenish the food at the station. As an attraction for the wild animals, coyotes, foxes and wildcats in particular, the station brought little result other than tracks of these animals in the morning. Burros were the best customers until the station was moved inside a fenced field nearby in order to give the desired visitors a chance. Ravens became most numerous, forty being counted one morning and several being present regularly and becoming somewhat tamer. From October till along in February the Magpies were regular visitors at the "table," ten being the most counted at one time.

Besides watching these overflow ponds, trips were made to the ponds at Eagle Borax Works where water birds were usually seen. All notes in this paper are based on "sight identifications," which fact may detract from its highest scientific

value in the eyes of some. As a matter of fact my duties as custodian included the protection of all wildlife and I could not consistently shoot birds while trying to prevent all shooting. So perforce I was obliged to use binoculars and what stalking experience I had. I believe my identifications to be fairly accurate.

Podilymbus podiceps. Pied-billed Grebe. One seen on April 24 and 28 at Furnace Creek Ranch (hereafter called the Ranch).

Ardea herodias treganzai. Great Blue Heron. Four records; January 20, February 8, March 15 and 21, at the Ranch.

Casmerodius albus egretta. America Egret. One record. On the morning of April 18, four were seen at the ponds below the Ranch. They were not very wild and allowed a fairly near approach before flying. On November 8, 1933, I saw one at Saratoga Springs at the south end of Death Valley about 20 feet above sea level, hence not a part of the area considered. However, it is mentioned as possibly indicating that both fall and spring migration routes of this bird may include Death Valley.

Butorides virescens anthonyi. Anthony Green Heron. Four records, at the Ranch: April 24, one; April 28, one; May 4, one; May 7, two.

Ixobrychus exilis. Least Bittern. One record. One seen the morning of May 4 on the edge of a pond below the Ranch.

Plegadis guarauna. White-faced Glossy Ibis. One record. At Eagle Borax Works, one bird was seen May 2 and May 5.

Chen hyperborea. Snow Goose. One record. October 30, one was seen at Eagle Borax Works. When first seen it was eating grass and allowed an approach to within about 25 yards before taking flight. It circled and then lit and resumed its meal.

Anas platyrhynchos. Mallard. Three records, at the Ranch, November 21, two; April 12, one; April 17, two. Previously reported but once, January 23, 1891.

Chaulelasmus streperus. Gadwall. Five records. Eagle Borax Works, December 27, two; at the Ranch, February 10, two; April 16 and 17, three, probably the same birds, as there were two females and one male; April 18, one female on the pond. Quite tame, showing no indication of having been shot at recently.

Mareca americana. Baldpate. Six records. Seen December 5, five birds; December 17, six birds; March 4 and 5, one and three birds; April 2, one bird.

Dafila acuta. Pintail. Ten records. First recorded at the Ranch, where six were seen on October 27. At Eagle Borax Works, October 30, five. At the Ranch, February 9, two males and a female, and on February 12 and 25, one on each date; March 5, 6 and 7, one bird each day; and on March 15 and 22, two birds each day. The last appearance was March 24, when two birds were seen.

Nettion carolinense. Green-winged Teal. Many records. First seen November 29 when three were on the pond at the Ranch. Seen during December six times, totaling 24 birds. In January were six occurrences, totaling 36 birds. In February, 14 occurrences with total of 133 birds; March, 11 instances with total of 59 birds; April, with three recorded dates and 10 birds; and May, two records, 2 birds. The last one was seen on May 7. Twenty-eight birds formed the largest flock and 267 of these ducks were recorded for the season.

Querquedula discors. Blue-winged Teal. On the ponds at the Ranch, April 1, a male and a female. Along with them were 27 Cinnamon Teal and 2 Green-winged Teal. Also noted on April 2, 3, and 4. At Eagle Borax Works, April 13, 16, and 20, possibly the same bird. April 24, two at the Ranch, undoubtedly new arrivals. I think at least three records were different groups of birds, the other dates being repeaters.

Querquedula cyanoptera. Cinnamon Teal. Many records. The most numerous duck. First observed February 25, when two were on the pond below the Ranch. During March, seen on 20 days, total of 203 ducks. In April there were 19 dates of occurrence with a total of 204 birds; in May, 7 dates with 24 birds. The last appearance was on May 7 with two birds. In all, 365 Cinnamon Teal were seen, the largest flock numbering 29.

Spatula clypeata. Shoveller. Five records totalling eleven birds. One record in November and the others in December.

Nyroca americana. Redhead. Three records. At the Ranch, January 15, five; at Eagle Borax Works, February 21 and 22, one, probably the same bird. The last one was seen at the Ranch on April 9.

Nyroca affinis. Lesser Scaup Duck. Six records. At the Ranch, January 15, one; February 5, ten. At Eagle Borax Works, February 22, three; March 17, one; April 9, one. Furnace Creek Ranch, March 17, one.

Glaucionetta clangula americana. American Golden-eye. One record. On the pond at the Ranch, April 24, one. I took a chance and tried to collect it. It fell over on its side a few feet from the shore and floated toward the bank. I laid down the gun and went to pick up the duck. When I came within four feet of the bird it rose from the water and soon flew out of sight; my gun was too far to reach in time for another shot.

Charitonetta albeola. Buffle-head. First seen at Saratoga Springs, which is not below sea level, on November 8, three, one male and two females. Five records: On the pond at the Ranch, November 29, one, a female; December 3, two, a male and a female; February 25, one, a female; April 9, one; April 20, one. At Eagle Borax Works, April 13, one; April 16, 18, and 19, one, probably the same bird.

Erismatura jamaicensis rubida. Ruddy Duck. One record. At Eagle Borax Works, May 5, one male and two females.

Mergus merganser americanus. American Merganser. On a pond below Furnace Creek Ranch, March 19, one, quite tame and stayed around all day, being seen in the morning and again in the evening; but was gone the next morning.

Accipiter velox. Sharp-shinned Hawk. Seen a few times at the Ranch and at Eagle Borax Works where they frequented the growth near the water where small birds lingered. First noted in November.

Accipiter cooperii. Cooper Hawk. Commonest of all hawks in Death Valley. First appeared in November and from then on seen frequently. Hung around all the water holes, and one day I saw one strike a teal in the air, but fail to get it as the duck reached the water and hid in some weeds. I really think this hawk should be thinned out in this vicinity as it tends to disturb the balance of nature where said balance is so diluted. But it may be better to let nature take her course. Noted once at the meat table, but not seen actually eating the scraps.

Buteo borealis calurus. Western Red-tailed Hawk. Frequently seen sailing around and sometimes perched on a mesquite tree. Frequents the watered localities where rabbits reside and where two species of ground squirrels are more frequent than on the alkali and salt flats. Seen once patronizing the meat table.

Buteo albonotatus. Zone-tailed Hawk. One record. On the morning of January 11, I saw one perched on a mesquite tree near the ponds below the Ranch. It allowed me to approach to within thirty yards where I studied it through binoculars at my leisure, easily making out the distinguishing marks. A nearer approach scared the bird into flight. A search on the next day and later failed to reveal it again.

Buteo regalis. Ferruginous Rough-leg. One record; at Mesquite Well a few miles south of Bennett's Well, November 13, one perched on a mesquite tree not far from the road. It allowed me to approach as near as 80 yards before taking flight.

Circus hudsonius. Marsh Hawk. First noted, October 30, and seen occasionally until spring. Observed on three occasions eating meat scraps at the feeding station. Once a big black cat ran at the bird and scared it from the meat, but the hawk circled and made a swoop at the feline which thereafter kept at a respectful distance.

Falco mexicanus. Prairie Falcon. A few observed at various points in the Valley. Seemingly has no favorite hunting ground but is a free rover. Noted a few times near water holes where ducks were the objective. One day I saw a falcon strike a Shoveller in flight and the duck dropped to the water along with the rest of the flock. They hit the water a few feet from where I stood but seemed unafraid of me, swimming at once toward some brush at the edge of the water. I experimented by walking near them, but not one took to the air, seeming to prefer the lesser evil.

Porzana carolina. Sora. One record. At the Ranch one was flushed at the edge of the water from some bushes and ran into other shelter a few feet away, affording a good sight of itself in transit.

Fulica americana. American Coot. Many records. Seen frequently at all watering places during the months from December to May. The greatest number seen

together was four, except at Saratoga Springs outside our limits, where thirty were seen at once.

Oxyechus vociferus. Killdeer. Many records. Seen at all watering places as often as visited. First one observed on October 30 and thereafter on to date when I left the Valley, in May. One with four little ones was noticed, April 30, at a small pool of water between the Ranch and Furnace Creek. Later these were seen near the swimming pool at the Inn. The breeding of this bird in Death Valley is thus established.

Capella delicata. Wilson Snipe. Many records. I notice with one exception that all occurrences of this bird recorded by Grinnell were in the month of April. The one exception was a record by Mr. Dane Coolidge of date December 30, 1919. My first record was on November 24, 1933, and from that time on to May 2, when the last was seen, snipe were much in evidence, mostly at Eagle Borax Works, where they found better feeding grounds, but also in the wet lands at the Ranch. They undoubtedly winter to some extent in Death Valley.

Actitis macularia. Spotted Sandpiper. Five records. At the Ranch, April 24 and 28, two; April 30, one; May 3, four. At Eagle Borax Works, May 2, two.

Tringa solitaria cinnamomea. Western Solitary Sandpiper. Four records. At the Ranch, April 19, one; April 29, one; May 4, one. At Eagle Borax Works, April 20, two.

Totanus melanoleucus. Greater Yellow-legs. Eight records. At Eagle Borax Works, February 27, four; April 13, one. At the Ranch, March 9, one; March 19, one; April 4, two; April 9, one; April 16, four; April 3, two. A total of sixteen observed.

Pisobia minutilla. Least Sandpiper. Four records. At Eagle Borax Works, November 24, three; March 12, one; April 20, fourteen. At the Ranch ponds, April 21, two.

Recurvirostra americana. Avocet. One record. At the Ranch ponds, April 28 and 29, one each day, undoubtedly the same bird.

Steganopus tricolor. Wilson Phalarope. Five records. At Eagle Borax Works, May 2, three. At the Ranch, May 2, one; May 4, one; May 5, three; May 7, one.

Geococcyx californianus. Road-runner. I must have been fortunate in my experience with this bird, as previously only tracks and the so-called singing have been recorded. Single birds were noted frequently and pairs sometimes seen. Below the Ranch, at Tule Springs and at Eagle Borax Works, pairs of the birds were encountered. Several old nests were noted and at Eagle Borax Works a nest containing two partly incubated eggs was found, May 2. The nest was placed in a mesquite tree about three and one-half feet off the ground and in construction it was typical for the species.

Speotyto cunicularia hypugaea. Burrowing Owl. Seen but once. On one of the few damp days one was flushed from under a section of galvanized roofing iron, and a few hours later while a light shower was falling the bird was again scared from beneath the same shelter.

Asio flammeus. Short-eared Owl. One record. On December 8, Mr. A. E. Borell picked up a dead male Short-eared Owl at Furnace Creek Ranch. The bird was in fine plumage and was preserved as a specimen.

Phalaenoptilus nuttallii. Nuttall Poorwill. First observed November 13. Noticed in the spring catching insects in the evenings around the electric lights at the Ranger Station. Apparently a few winter in Death Valley, as a dead one was picked up in January.

Megaceryle alcyon caurina. Western Belted Kingfisher. Seen but once, below the Ranch, on April 16.

Myiarchus cinerascens cinerascens. Ash-throated Flycatcher. Seen but once, March 24, at the Ranch.

Pyrocephalus rubinus mexicanus. Vermilion Flycatcher. Four occurrences, March 15 and 27, April 2 and 14, one bird on each date, all males.

Pica pica hudsonia. Black-billed Magpie. Observed almost daily from October until February 13 when five were seen below the Ranch. Noted but three times at Eagle Borax Works. They were consistent customers of the feeding station below the Ranch and not infrequently as many as ten were seen at one time. They never were tame, but became less wild as time went on.

Corvus corax sinuatus. American Raven. Numerous to both ear and eye. Frequented the feeding station in numbers, forty being counted there one morning. A nest was found in a crevice high on an inaccessible cliff not far from the sea level line.

Corvus brachyrhynchos hesperis. Western Crow. Observed twice flying over the floor of the valley. Another seen at Stovepipe Wells Hotel, that two ravens had attacked and had driven into the lobby of the hotel.

Mimus polyglottos leucopterus. Western Mockingbird. Only two seen, May 4, at the Ranch.

Oreoscoptes montanus. Sage Thrasher. First seen, November 24; last, April 16. Present in small numbers at varying dates during the intervening time, from the Ranch down the valley as far as Bennett's Well.

Sialia mexicana occidentalis. Western Bluebird. The nearly complete absence of this bluebird is strange when the Mountain Bluebird was comparatively common. The only individual noticed was a male at the Ranch on January 25.

Sialia currucoides. Mountain Bluebird. First noticed in January; from then on till the middle of April seen occasionally in small numbers at the Ranch, and in greater numbers at Eagle Borax Works where small flocks were encountered and a few noted on nearly every visit made to that locality.

Bombycilla cedrorum. Cedar Waxwing. One record. Mr. Borell saw a flock of six at the Ranch on December 15.

Phainopepla nitens lepida. Phainopepla. On May 6 a female was seen in the mesquites at the Ranch.

Vermivora celata. Orange-crowned Warbler. Two records. At Eagle Borax Works, April 13, one in mesquites. At the Ranch, May 7, four in mesquite trees.

Vermivora ruficapilla ridgwayi. Calaveras Warbler. One record: May 6, one in a mesquite tree. By making careful movements was able to get within six feet of the bird.

Icteria virens longicauda. Long-tailed Chat. At the Ranch, May 6, one; May 7, two.

Wilsonia pusilla pileolata. Northern Pileolated Warbler. At the Ranch, May 5, one; May 7, two in the mesquites. The warblers were just coming in when observations ceased.

Icterus cucullatus nelsoni. Arizona Hooded Oriole. At the Ranch, May 5, one in the cottonwood trees.

Piranga ludoviciana. Western Tanager. At the Ranch, May 5, two, both males; May 7, one male.

Hedymeles melanocephalus. Black-headed Grosbeak. At the Ranch on May 7, one. Doubtless more could have been seen later, as several migrant species appeared at about this time; but no observations were made subsequent to this date.

Passerina amoena. Lazuli Bunting. At the Ranch, May 5, one. Same notation applies to this bird as to the Grosbeak.

Junco hyemalis. Slate-colored Junco. At the Ranch, November 23, one.

Junco oreganus shufeldti. Shufeldt Junco. During November two or three seen a few times, and on November 30 seven were seen, at once, at the Ranch.

Junco mearnsi. Pink-sided Junco. At the Ranch, November 6 and 7, two allowed me to approach within ten feet of them, permitting the distinguishing marks to be closely studied. One was observed to jump several times into the air and catch insects. On the same two dates two were seen between the Ranch and Furnace Creek Inn. They may possibly have been the same two birds. As I was familiar with these juncos in Colorado I do not think I was mistaken in my diagnosis of their identity.

Zonotrichia leucophrys. White-crowned Sparrow. Two records; May 2, two. These were close enough to see easily the distinguishing black lores. May 7, two more; may have been the birds seen earlier.

Death Valley, California, February 3, 1935.

BIRD RECORDS FROM THE TUCSON REGION, ARIZONA

By CHARLES T. VORHIES, RANDOLPH JENKS, and ALLAN R. PHILLIPS

While it is not possible to lay down a strictly delimited area as a definition of what we mean by "the Tucson region," we have in mind primarily that area of the Lower Sonoran Zone immediately surrounding Tucson, and within a radius of twenty to twenty-five miles of the city. Practically all of the occurrences discussed here are from this small area, with occasional references to more distant points. The most important exception is Picacho Reservoir, and this is still in the Lower Sonoran Zone and at a lower altitude than Tucson.

Since the definite records presented add materially to our knowledge of the birds of this region, it seems to us desirable to place them in the literature. Two species, the Herring Gull and the Sabine Gull, are here newly recorded for the State.

Gavia immer elasson. Lesser Loon. This species was mentioned by Visher (Auk, 27, 1910, p. 280) as a "tolerably common migrant" about Tucson, but the first unquestionable record appears to be that of an immature male captured alive near the Ajo road, some ten miles southwest of Tucson, late in October, 1932. This bird was brought to Vorhies and by him placed in the University aviary. It refused food and died on November 4. Lesions in the form of small yellow nodules were found abundant in the abdominal air-sacs.

In October, 1933, an immature female, identical in plumage with the above male, was found on the southeastern edge of the city, near the Southern Pacific railway tracks. Its history was practically a repetition of the other. It died on October 28.

Neither of these birds was in or near water when found, and it would appear that as passing migrants they became weary or exhausted and even after resting were unable to take off from land. These are the only loons seen by Vorhies during his nineteen years of residence in Tucson. Measurements indicate the subspecies *elasson*. Both are in the University collection.

Podilymbus podiceps podiceps. Pied-billed Grebe. Vorhies has seen this bird frequently in the past several years at such places as Indian Dam (on the Santa Cruz River, 10 miles south of Tucson), Agua Caliente Ranch (15 miles northeast), and Binghampton Pond (5 miles northeast), but without in every case recording the occurrences. In Bird-Lore's "Thirtieth Christmas Bird Census," Taylor and Vorhies recorded three Pied-billed Grebes (Bird-Lore, 32, 1930, p. 61) northeast of Tucson. More recently recorded dates are May 8, 1932, March 11 and 25, May 21, and October 15, 1933 (Picacho Reservoir, 55 miles northwest); March 24, April 15 and 28, and May 19, 1934. The record of April 15 (Indian Dam) was of three individuals on open water, quite undisturbed, observed in the act of calling. On August 20, 1934, a Pied-billed Grebe was reported to Vorhies, and by him secured, from four miles northeast of the city. This individual, taken on dry land, proved to be an adult male. The only previous record for the region is that of two specimens taken by Herbert Brown at Tucson, February 18, 1886 (Scott, Auk, 3, 1886, p. 383).

There is a specimen, a young female, in the Herbert Brown collection (State Museum) from Tucson, October 14, 1888.

Pelecanus erythrorhynchos. White Pelican. There being but a single record known to us for this region, the following occurrences are noteworthy. April 18, 1930, Vorhies and Taylor saw a flock passing northward over the desert five miles west of Tucson. In 1932, reports reached the University of the presence of pelicans on Picacho Lake. May 21, 1933, Vorhies and Jenks, with some other students, visited the lake and found a flock of 60 to 75 of these birds. The caretaker believed they nested there the previous summer. Accordingly, on June 16 and 17, Vorhies again visited the lake to look for possible nesting and found 100 individuals. Though many birds showed the breeding season excrescence on the beak in May, no indication of nesting could be found, nor could it be expected, as there was no island available as a nesting refuge. On July 4, Vorhies and Taylor again investigated the nesting possibilities, with negative results. About 20 birds were then present. October 15, 1933, the authors saw six pelicans on this lake. April 14, 1934, about 175 were

present and on December 8, 1934, there were seven. Thus it appears from our records and information furnished by the caretaker at the lake that White Pelicans have been present continuously, or almost so, at Picacho Lake for two years or more.

Phalacrocorax auritus albociliatus. Farallon Cormorant. Cormorants, apparently all of this species, are not uncommon about Tucson, occasionally putting down in almost any good sized pool of water. Twice they have dropped into the University swimming pool, where Vorhies first saw one in the spring of 1918. They seem to be most common in April and October, though Howell (Condor, 18, 1916, p. 210) records them in the winter. One of several at Agua Caliente Ranch was photographed by the owner, Dr. Blake, on October 20, 1933. On April 15, 1934, Vorhies with the class in ornithology, at Indian Dam, saw at close range an individual in the unmistakable breeding plumage of this species.

Casmerodius albus egretta. American Egret. This species was observed at Picacho Lake on May 21, June 17, and October 15, 1933. Two were reported at Indian Dam, May 7, 1933, by a member of the ornithology class, John Cassady.

Egretta thula brewsteri. Brewster Egret. Observed at Picacho Lake on May 21 (Vorhies and Jenks) and June 17 (Vorhies), 1933. Three were reported by Cassady at Indian Dam, May 7, 1933. On October 2, 1933, Vorhies and Taylor saw a lone individual beside a small pool in the borrow pit along the highway 40 miles northwest of Tucson. The car was stopped opposite the bird, which was observed for some time at a distance of not more than 50 feet. It showed little alarm. On April 14, 1934, four were seen at Picacho Lake by the ornithology class.

It seems evident that egrets of both the above species are becoming more common in southern Arizona. In addition to the above specific records Vorhies has had several reports which indicate with fair certainty one of the white egrets, but without specific identification. *In June, 1932, such a bird lived about the pools on the grounds of El Conquistador Hotel, at the eastern edge of the city, for a week. The hotel* was at that time closed for the summer. This was probably an *Egretta.* At Picacho Lake, July 4, 1933, Vorhies and Taylor saw white herons which were too far away for specific identification. In September, 1934, D. M. Gorsuch saw four egrets, species not known, at a represo 35 miles south of Tucson on the Santa Rita Experimental Range.

Butorides virescens anthonyi. Anthony Green Heron. This bird regularly breeds in the Tucson region, Vorhies having seen a nest at Indian Dam each of the past three years. Notable as a winter occurrence, however, is the record of Taylor and Vorhies for December 24, 1929 (Bird-Lore, 32, 1930, p. 61).

Anser albifrons gambelli. Tule Goose. On February 15, 1935, Vorhies collected a specimen of this species at Binghampton Pond, which proved to be *gambelli.* Its identity has been checked by Swarth. While the species has been twice reported from this state, no specimen has previously been taken, and the subspecies most apt to occur here is unknown. The present record is, therefore, of more than local interest. It establishes an occurrence of *gambelli* as defined by Swarth and Bryant (Univ. Calif. Publ. Zool., 17, 1917, pp. 209-222) outside of the Sacramento Valley, California, in winter. Since it would appear from the present meager knowledge of distribution of the subspecies that *A. a. albifrons* would be the form more likely to occur in Arizona, this record does not subspecifically identify the flock reported recently by Vorhies and Taylor (Condor, 37, 1935, p. 175). This bird was a lone individual, in tules or weeds, in a small pond; this circumstance characteristic of *gambelli.* The birds seen by Vorhies and Taylor were a flock of thirty, in the open, more characteristic of *albifrons.*

Mergus merganser americanus. American Merganser. An adult female, victim of the hunting season, was found in good condition in the edge of the water of Picacho Lake on December 8, 1934, by Vorhies, and preserved. The species is rare here. Scott (Auk, 3, 1886, p. 384) recorded it on the San Pedro River; and there is one female in the Herbert Brown collection taken at Tucson on December 1, 1886.

Mergus serrator. Red-breasted Merganser. An apparently uninjured female was picked up in a dry ditch near the Veterans Hospital just south of the city, and brought to Vorhies on October 30, 1933. It is preserved in the University collection.

Coragyps atratus atratus. Black Vulture. On September 4, 1934, Vorhies saw a soaring, circling flock of forty of these vultures ten miles south of Tucson. During the next two weeks many of these birds were seen in the same region. This is at

least two months earlier in the fall than they have been noted previously. (See Taylor and Vorhies, Condor, 35, 1933, p. 205.)

Falco columbarius richardsonii. Richardson Pigeon Hawk. On January 28, 1933, a female of this species was killed at a chicken pen four miles north of Tucson, and reported to Vorhies who secured and preserved it. This individual bore Biological Survey band number A420558, from which it was learned that the bird was banded on July 6, 1931, at Rosebud, Alberta, Canada, by W. R. Salt. This appears to be the first record for the immediate region of Tucson. One other for southern Arizona was taken at Safford on December 12, 1930. This individual was also banded at Rosebud by Salt. (Bird Banding Notes, 2, 1933, p. 150.)

Limnodromus griseus scolopaceus. Long-billed Dowitcher. Jenks took a specimen at a represo one mile east of Sells (59 miles southwest of Tucson) on March 18, 1933, which was identified by Dr. Grinnell of the Museum of Vertebrate Zoology. There are three specimens of this species, taken at Tucson, in the Herbert Brown collection. One of each sex was taken May 15, 1887; the third, a female, bears no date.

Himantopus mexicanus. Black-necked Stilt. Jenks took a male at Binghampton Pond on May 11, 1933, which was prepared as a study skin by Vorhies. The class in ornithology saw six or seven at Picacho Reservoir on April 14, while 24 were seen there the following day by a member of the class; and the same group saw five at Indian Dam on May 19, 1934.

Larus argentatus smithsonianus. Herring Gull. An individual dead for several days was found in the city by Phillips on November 17, 1933. Although very badly mangled and dirty, the head, one wing, and one scapular were preserved and later identified by Grinnell. *This is an addition to the published Arizona List, although there are two well preserved specimens in the Brown collection. One of these is an immature male taken Novembr 16, 1894, on the "Santa Cruz, near Tucson." The other is an unsexed immature taken January 12, 1903, without locality record, but probably from Yuma.* The identity of both Brown collection specimens has been checked by Mr. G. Willett of the Los Angeles Museum.

Larus delawarensis. Ring-billed Gull. A gull believed to be of this species was seen by the authors at Picacho Reservoir, October 15, 1933. Vorhies also saw several gulls there on April 14, 1934, and believes at least two were Ring-billed Gulls.

Xema sabini. Sabine Gull. A young male of this species, identity of which has been checked by Willett, is in the Brown collection. This is an unpublished first record of the species in Arizona, and since it was taken at Tucson, it is included here. The date is September 15, 1892.

Chlidonias nigra surinamensis. Black Tern. A single bird was seen at Indian Dam, May 7, 1933, by Cassady. Jenks took a specimen at Binghampton Pond May 12, 1933. While this species was reported common in August by Visher (Auk, 27, 1910, p. 280), the record has not been accepted, and Vorhies has had no evidence in nearly two decades to verify such a record.

Melopelia asiatica mearnsi. Western White-winged Dove. A single individual was seen by Vorhies and William Hudspeth, an ornithology student, on December 8, 1934, in mesquite at the southwestern edge of the city; an unusual winter occurrence.

Asyndesmus lewis. Lewis Woodpecker. Hudspeth reported to Vorhies the occurrence of an individual in the cottonwoods at the southwestern edge of the city on November 24, 1934. This is a rare occurrence in the Lower Sonoran Zone of southern Arizona. Mearns (Auk, 7, 1890, p. 254) recorded the species in this region "during the blazing weather of April." Herbert Brown recorded their "unusual abundance" near the city from September 28 to October 28, 1884 (Auk, 19, 1902, pp. 80-83). Hudspeth's is the first record from this region in more than forty years.

Empidonax hammondii. Hammond Flycatcher. Two birds appeared in lower Sabino Canyon (2900 feet altitude), twelve miles northeast of Tucson, on January 18, 1934 (Jenks), and were seen regularly thereafter. One collected by Phillips, February 24, was identified by Grinnell. No other winter records are known to us.

Camptostoma imberbe. Beardless Flycatcher. The only previous records in our area are from the Santa Cruz River south of Tucson and from the lower slopes of the Santa Rita Mountains. On April 22, 1928, at Agua Caliente Ranch, Vorhies heard a strange note, which was traced to a pair of small flycatchers engaged in nest building. On May 7 the same note was heard at Nicholson's Ranch in the Santa

Rita Mountains. When collected by Dr. Walter P. Taylor the bird responsible proved to be of this species.

A specimen in the Museum of Northern Arizona was taken by Phillips on Rillito Creek, seven miles northeast of Tucson, October 22, 1933 (prepared by E. C. Jacot). Another specimen was taken by Phillips in lower Sabino Canyon on January 7, 1934, where from one to three of these birds were seen by Jenks and Phillips from February 15 to March 23. Phillips saw one individual in lower Otero Canyon, 4000 feet altitude, east slope of the Baboquivari Mountains, 55 miles southwest of Tucson, on February 18, 1934; he also has records of single birds seen there on March 31, April 5, and May 15, 1932, which on the basis of size, color and habits were doubtless this species. This, however, is not the westernmost record, for Taylor heard several and collected one at the Fresnal Experiment Station, on the west side of the same range, on June 21, 1932.

The best field character of this species seems to be its call, a musical, whistled *pee-erp*. Phillips noted the bird's resemblance to a Ruby-crowned Kinglet or Stephens Vireo, while Taylor compared it to the Arizona Vireo. In actions it differs from most flycatchers, as it habitually gleans after the manner of kinglets, vireos, and warblers. It is often found among scrub mesquite and other small shrubs.

Progne subis subis. Purple Martin. Recorded as a summer visitant in the Tucson region (Pacific Coast Avifauna no. 10, 1914, p. 62), the status of this species as a nesting bird seems not to have been definitely recorded as yet. Vorhies has noticed the martin at irregular intervals in summer for a number of years, and for the past few years has considered it highly probable that it nested in the cavities in the giant cactus, or sahuaro. Fifteen to twenty miles east of Tucson, these birds may be observed almost any day in the summer season. Finally, on July 16, 1933, at the University Cactus Forest (twenty miles east), Vorhies observed Purple Martins carrying food into a flicker cavity in a sahuaro. Fortunately he was accompanied by Dr. H. C. Bryant and Dr. Walter P. Taylor, who verified the observation; and a little later the same morning, the observation was repeated at another sahuaro.

Aphelocoma sieberi arizonae. Arizona Jay. A single bird was seen well at close range along the Santa Cruz River just southwest of the city, April 18, 1934 (Phillips). It was first recognized by its call.

Sitta carolinensis nelsoni. Rocky Mountain Nuthatch. Early in November, 1934, an occurrence of nuthatches in the Santa Cruz River bottoms was reported to Vorhies by Hudspeth. On November 9, a short trip and a few minutes of time among the cottonwoods disclosed the presence of at least two or three, one of which, a male of this species, was collected. Some were still present there on December 18. Reports, unrecorded in the literature, indicate that careful check-ups every winter might reveal the fairly regular occurrence of this species.

Vermivora celata orestera. Orange-crowned Warbler. A single bird was seen regularly in lower Sabino Canyon from December 16, 1933, to February 24, 1934 (Jenks and Phillips). Phillips collected this individual and one of two others on February 24, and both have been identified as of the subspecies *orestera* by Grinnell. Warblers, presumably of the same subspecies, were seen occasionally in Tucson the same winter (Jenks and Phillips).

Dendroica nigrescens. Black-throated Gray Warbler. The first winter record of this bird for Arizona or the United States seems to be that of Taylor and Vorhies from the Tucson region, December 26, 1927 (Bird-Lore, 30, 1928, p. 66), when three individuals were seen. Two were seen regularly in lower Sabino Canyon from November 12, 1933, to March 18, 1934, by Jenks and Phillips. These records indicate the possibility of scattered but not uncommon occurrence of this species far north of its recorded winter range.

Seiurus noveboracensis notabilis. Grinnell Water-thrush. This species has proved not uncommon near Tucson the last two years, at least in May. Jenks collected a specimen at Binghampton Pond May 24, 1933. Phillips took specimens in the Santa Cruz River bottoms on April 26 and May 13 (five seen on the latter date); and single birds were seen on April 28 and May 15, 1934. The 1933 specimen has been identified by Dr. Alden H. Miller of the Museum of Vertebrate Zoology as of the newly proposed subspecies *limnaeus*. Other records presumably pertain to the form *nota-*

bilis. Water-thrushes have been previously recorded several times in this region, both in spring and fall.

Calamospiza melanocorys. Lark Bunting. This common winter resident sometimes arrives remarkably early in the fall. Vorhies and Taylor saw a flock of twenty-five or thirty near Sahuarita on the Tucson-Nogales highway July 25, 1933. A single male was noted the same afternoon just south of Tucson. In 1934 Vorhies again saw two flocks of this species, near Sahuarita, on August 12; Phillips, a flock of five some 25 miles north of Tucson August 17; and Vorhies, a male in summer plumage at the eastern edge of the city on August 19. Similarly early southward movements have been noted in Texas, New Mexico, and California. (See W. W. Cooke, Bird-Lore, 16, 1914, p. 267.)

Junco caniceps. Gray-headed Junco. A male was taken by Phillips on the Santa Cruz River bottoms one mile southwest of town on April 9, 1934, and was identified by Grinnell.

Passerella iliaca schistacea. Slate-colored Fox Sparrow. Quite a number were seen in lower Sabino Canyon from December 15, 1933, to February 27, 1934 (Jenks and Phillips). Three specimens were taken, all of which were identified as of this form by Grinnell. There is only one previous record of a Fox Sparrow from the region, a female *P. i. canescens* taken from a flock, at Oracle, March 8, 1922, by F. H. Kennard (Condor, 26, 1924, p. 76). See Stephens (Condor 16, 1914, p. 259) for correction of an error in records.

Our thanks are due Mr. A. H. Anderson who first reported from Binghampton Pond the presence of the Black-necked Stilt, the Black Tern, and the Water-thrush taken there by Jenks.

University of Arizona, Tucson, Arizona, February 18, 1935.

COMMENTS UPON THE SUBSPECIES OF *CATHERPES MEXICANUS*

WITH ONE ILLUSTRATION

By J. GRINNELL and WM. H. BEHLE

Recent attempts to allocate specimens of *Catherpes mexicanus* in the Museum of Vertebrate Zoology to their subspecies has resulted in the feeling that there are *not* two, far-western recognizable races as indicated in the last A. O. U. Check-list; that is to say, *C. m. punctulatus* is not satisfactorily distinguishable from *C. m. conspersus*. This impression, acquired from cursory examination of the specimens, was intensified when it became realized that the type localities of these supposed forms are exceedingly close together and when the earlier descriptions were found to be inadequate.

In 1903, Oberholser (Auk, 20, pp. 196-198) reviewed the genus *Catherpes* Baird and recognized five forms in it, all of which were considered to be subspecies of *Catherpes mexicanus*. At this time, *C. m. polioptilus* was described as new, being split off because it was thought to be paler than *C. m. albifrons*, and to have a "much shorter bill." Its range was designated as from "western Texas through New Mexico, Arizona, and northwestern Mexico to Lower California."

Ridgway (Bull. U. S. Nat. Mus., No. 50, Part III, 1904, pp. 653-663) continued to recognize the five forms which Oberholser listed, but he commented (p. 661) upon *polioptilus* as follows: "This is not a clearly defined form, like the others here recognized, but rather a variable series of intermediates, segregated for nomenclatural convenience." This statement made us begin to wonder whether these races of wrens were being sustained with the idea of fitting all forms into an artificial classification, rather than into a natural one which had as its object the proper expression of variation and relationships.

Ridgway also stated (*op. cit.*, pp. 661-662) that examples from Arizona and southward to southern Sonora are intergrades between *mexicanus* and *conspersus*, gradually becoming larger and darker to the southward. The average coloration of this intermediate series, he said, was almost identical with that of *punctulatus*. yet occurring with the darker birds, sometimes apparently in the same locality, were individuals which seemed in every way to be typical of *conspersus*. This condition strikes us as pointing toward the existence of extreme variation among individuals and is one circumstance that led us early to question the distinction between *conspersus* and *punctulatus*.

Ridgway described *punctulatus* in 1882 (Proc. U. S. Nat. Mus., 5, pp. 343-344) when museum materials were scarce, and he based his description on but five specimens. The measurements of these were not appreciably different from those of *conspersus*. California specimens were supposed to be darker than *conspersus* and smaller than *mexicanus*. The type locality of *punctulatus* is Forest Hill, Placer County, California, on the lower western slope of the Sierra Nevada. Fort Churchill, Lyon County, Nevada, the type locality of *conspersus*, is in western Nevada, not so very far from the east base of the Sierra Nevada. Indeed, the type localities of *conspersus* and *punctulatus* are only 82 miles apart, air line.

One cannot, of course, attach any significance to the two localities being so close together without taking into account the general habitat relations of the birds. Cañon Wrens, in our experience, are essentially non-migratory; ordinarily they do not move in winter, even from higher to lower levels. (There may be *some* post-breeding-season wandering.) The immediate habitat of the birds consists of broken rock masses and fractured cliffs, and these we think are fairly uniform as to conditions of light and shade, from the most humid to the most dry parts of the general range of this species. The white breast of the Cañon Wren is probably an adaptive feature, associated with a forage beat in shaded recesses, acting as an "illuminator." It may also at the same time possess a "directive" significance, or even a territorial or combative one. Under such conditions we would hardly expect to find two races represented in tangible manifestation so close together as these two type locatities would indicate.

A further and perhaps worthy consideration is that over the same territory whence three supposed races of the Cañon Wren have been described, the Rock Wren (*Salpinctes obsoletus*) occurs widely with no detected geographic variation. Of this wren no subspecies has been proposed from any place north of the Mexican line, save from San Nicolas Island, off the coast of southern California; and this one has been disallowed. (See Grinnell, Condor, 29, 1927, p. 165.)

To further our enquiry, 193 skins of Cañon Wrens were assembled. These represent localities from Ashland, Jackson County, Oregon, south to Lower California, and east to Texas. Skins taken in spring and summer months, being considerably worn and faded, were not given primary consideration. The remaining, fresh plumaged birds, of fall and winter take, were segregated as to age, sex and locality, in order that birds from the ranges of all the supposed races could properly be compared.

When birds of the two age categories were compared from the same localities, immature males in first winter plumage were not found to be distinguishable from adult males in their fresh annual plumage. Immaturity was decided from the character of the skull, as marked on the tag by the collector, and only those birds were considered in this connection that had been collected, and the age marked, by experienced collectors. To repeat, there did not appear to be any color difference

whatsoever between the first winter plumage and the adult winter plumage. Neither did we find any color differences between males and females when skins of the same state of plumage were compared from the same localities.

There remains, however, considerable variation within the collection from any one region. The individual difference in color tone of birds from the same area is so great that it must overlap any color difference that might exist due to age and sex. Not only does the general color vary through many shades of brown, but also the tail bars and the dots on the dorsal surface are notably different among individuals. The transverse tail bars on some individuals are less than one millimeter wide, and on others are as much as three millimeters wide; all widths in between are present. The dots are found to be variable not only as to the amount of white, but also as to the amount of black at the base of each white dot. There seems to be some positive correlation between the dorsal color tone and the length of the feather barbs beyond the subterminal white dots. If these dots are set well back there is a subdued effect and a brownish appearance. If, through wearing off of those terminal barbs or through natural variation, the dots happen to be situated near the ends of the feathers then the dorsal plumage presents a decided gray effect. The variation exhibited in the tail bars and white dots seems, then, as far as we can see, to be purely individual.

We find no appreciable geographical variation in body color between Cañon Wrens from within the combined ranges of *conspersus* and "*punctulatus*." Fourteen adult males in fresh fall plumage show impressive uniformity in color when individual differences are taken into account. Only one bird stands out as notably paler than the rest, this one being from Bluff, San Juan County, Utah (no. 54499, Mus. Vert. Zool.). Series of fresh plumaged females, and immatures of both sexes, also fail to show differences of possibly racial meaning.

A series of fourteen winter-taken males from the same localities as the fresh plumaged males shows some interesting color features. In these, wear has progressed to a perceptible, though not extreme, degree. Four specimens from Yosemite Valley and El Portal, Mariposa County, California, are darker than birds from Pasadena, Los Angeles County, and Palm Springs, Riverside County, California, El Sauce, Victoria Mountains, Lower California, and Bates Well, Pima County, Arizona. Upon close examination the paleness of the more southern birds appears to be the result of more wear and fading. In other words, there seems to be a different rate of abrasion and fading under the drier climate of southern California and Arizona as compared with that of the more humid and cloudy Sierran area. To further break down the idea of any racial difference existing, is the presence of a bird from the Tumacacari Mountains, Santa Cruz County, Arizona (no. 59168), and another from the Chiricahua Mountains, Cochise County, Arizona (no. 3253, Law collection), both of which closely match the Yosemite birds.

All the birds in fresh fall plumage, and some winter-taken birds not too obviously abraded, were measured in the conventional manner. As an added refinement both wings were measured, and the average for each individual was used in subsequent figuring just as though one wing had been measured. All measurements were taken in millimeters. The diagram (fig. 46) and table following, show not only what geographical variation exists in certain features of size and proportions but also sexual differences. It should be noted, further, that the averages of juvenal birds were found to be similar to those of adults of the same sex.

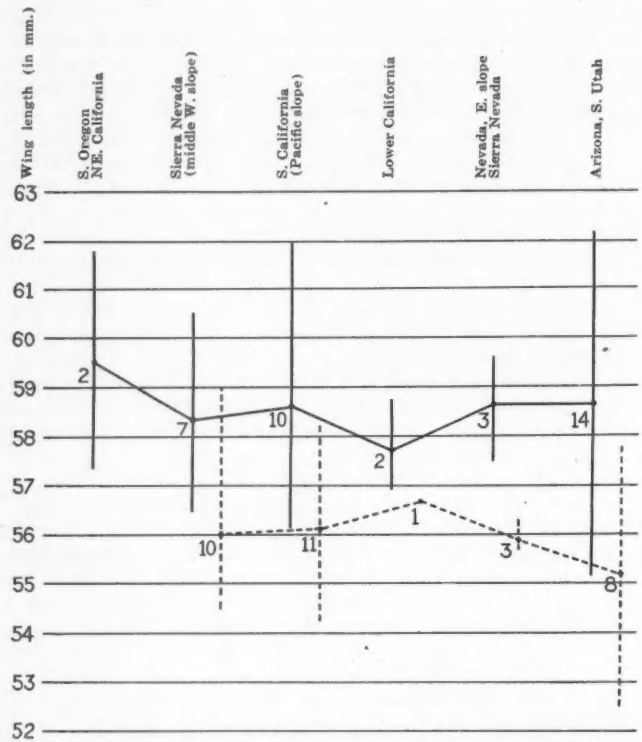

Fig. 46. Diagram showing sexual, individual and geographic variation in wing length, of certain specimens of *Catherpes mexicanus*. Solid lines, males; broken lines, females; figures at left and right of these lines, respectively, indicate number of individuals measured; length of each vertical line shows range of individual variation; points connected by solid and broken lines, respectively, mark positions of averages.

Age and sex	No.	Wing	Tail	Exposed culmen
Adult males	28	55.2-62.0 (58.8)	45.3-54.5 (50.0)	18.0-21.5 (19.5)
Adult females	21	54.3-59.0 (56.0)	44.0-50.3 (46.8)	16.2-19.9 (17.8)
Immature males	9	56.6-61.9 (58.8)	47.2-55.0 (50.1)	18.3-21.1 (19.5)
Immature females	13	54.3-57.1 (55.7)	43.3-49.5 (46.6)	15.5-18.5 (17.1)

Age and sex	No.	Bill from nostril	Tarsus	Middle toe without claw
Adult males	28	14.0-18.8 (16.0)	15.7-19.0 (17.6)	12.0-14.9 (13.1)
Adult females	21	13.3-16.7 (14.7)	15.9-19.2 (16.9)	11.2-14.0 (12.4)
Immature males	9	15.3-17.3 (16.2)	16.3-19.1 (17.7)	11.7-13.8 (12.8)
Immature females	13	13.1-15.9 (14.1)	15.3-18.8 (17.1)	11.1-13.2 (12.4)

All available weights in grams were averaged, for all United States localities, with the following results: adult males (19 specimens), 9.4-12.6 (11.2); adult females (16 specimens), 9.1-12.6 (10.3) ; immature males (5 specimens), 10.3-11.6 (11.0); immature females (10 specimens), 9.1-11.9 (10.5).

In conclusion, it now seems clear that the Cañon Wrens from west of Texas cannot with any degree of consistency be divided into races. *Punctulatus* is not separable from *conspersus*, and since the latter is the older name, *punctulatus* goes into synonymy under that name; *polioptilus* also. While selected individuals from the two areas may differ pronouncedly from one another, this condition may be attributed to extreme individual variation. Erroneous conclusions are liable to be drawn unless birds of the same sex, age and state of wear are compared, and allowances made for an apparent differential rate of wear and fading under different climates.

There are thus but two recognizable forms of *Catherpes* within the United States, as follows: *Catherpes mexicanus albifrons* (Giraud), ranging across the Mexican line into southwestern Texas, near the mouth of the Pecos River; and *Catherpes mexicanus conspersus* Ridgway, whose range may be defined approximately as the Rocky Mountain region, the Great Basin, and the Pacific states, and west from western Texas to southern California and south through Lower California.

Finally, it should be pointed out that we are not alone in the above conclusions. Willett, in his recently "Revised List of the Birds of Southwestern California" (Pacific Coast Avifauna No. 21, 1933, p. 127), stated that he could not find any differentiating characters between *conspersus* and *punctulatus*. Hellmayr, in his Part VII of the "Birds of the Americas" (Field Mus. Nat. Hist., Publ. 330, Zool. Ser., 12, 1934, p. 278), remarks concerning *polioptilus* that "its recognition in nomenclature is open to serious question."

Museum of Vertebrate Zoology, Berkeley, California, January 15, 1935.

THE RANCHO LA BREA WOOD IBIS

WITH ONE ILLUSTRATION

By HILDEGARDE HOWARD

During the past year I have been going over several boxes of bones excavated from Rancho La Brea by the Southern California Academy of Sciences. This material was given to the Los Angeles Museum many years ago, but much of it was still coated with asphalt, and it had never been added to the regular museum collection.

In this material I found a fragment of mandible, a proximal end of tarsometatarsus and a complete carpometacarpus of Wood Ibis. The Wood Ibis was early recorded from Rancho La Brea by Miller (Univ. Calif. Publ., Dept. Geol. Sci., 7, 1912, p. 78). Later, in referring to this record, Miller said (Carnegie Inst. Wash. Publ. 349, 1925, pp. 73-74) that "the record was based upon the very characteristic symphyseal region of the lower jaw in the collections made by the Los Angeles High School under direction of Mr. J. Z. Gilbert. The specimen has been lost to sight, hence the record can not be reviewed in this paper with positive results. There is no doubt in the mind of the writer, however, as to the very close affinity if not identity of this fragment with the Recent *Mycteria americana*." Dr. Miller, upon seeing the mandible from the Southern California Academy excavation, is convinced that this is the specimen upon which he based his record. Since Dr. Gilbert was in charge of both the Los Angeles High School and the Southern California Academy excavations, it is not difficult to understand how confusion may have arisen regarding the collection from which the mandible came.

The specimen, as Dr. Miller said, is undoubtedly close to *Mycteria americana*. However, it is strikingly large and appears less curved than the modern species.

Though it is difficult to make exact comparison with the living form, since the mandible bears no definite mark which can be used as a point of reckoning, combined details give a fairly accurate basis of comparison. On the fossil symphysis the dorsal edges of the rami, toward the posterior end, are still parallel; they have not begun

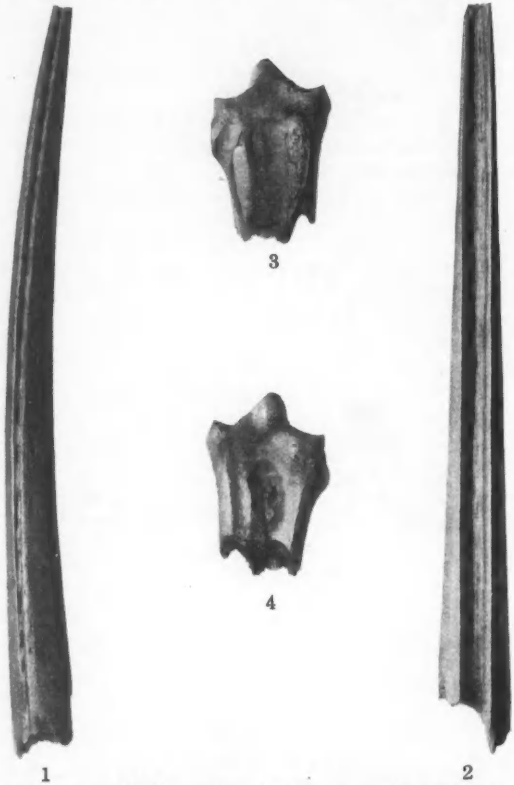

Fig. 47. 1 and 2, fragment of lower mandible of *Mycteria wetmorei*, type specimen, Los Angeles Museum no. K3527, lateral and dorsal views; 3 and 4, proximal end of tarsometatarsus (L. A. Mus. no. K3528), referred to *Mycteria wetmorei*. Natural size.

Photographs by H. Wm. Menke, retouched by John L. Ridgway.

to flare outward. In the modern species the flaring of these edges usually begins just a little more than one-third of the distance back from the tip of the mandible, with some small variation. This calculation coincides also with the faint lateral grooving near the dorsal edge, a portion of which is visible in the fossil fragment. It is estimated, therefore, that the fossil specimen represents approximately the last third of the mandible, with the exception of the extreme tip, which is missing.

In both size and curvature the fossil bone differs from the nine modern specimens available to me in the combined collections of Dr. Loye Miller and the Los Angeles Museum. Thinking that a larger series of specimens might reveal a greater

range of variation, however, I communicated with Dr. Wetmore, who offered to compare the bone with specimens in the United States National Museum collections. The result of all comparisons is the decision that the Rancho La Brea bird was a distinct species. It is therefore here described as:

Mycteria wetmorei, new species

Type.—Fragment of lower mandible, coll. Los Angeles Museum no. K3527, from excavations by Southern California Academy of Sciences, north bank of "pool" near Wilshire Boulevard, Rancho La Brea, Los Angeles, California; Pleistocene age.

Description.—Similar in general characters to *Mycteria americana*, but differing as follows:

(1) Roughly from thirty to forty-five per cent larger. Available fragment 121 mm. in length, from which length to tip is estimated at 135 mm. Comparable portion of mandible of *M. americana* measures: largest, 90 mm., smallest 76 mm.

(2) Curvature slight, amounting along ventral edge to a 13.5° arc of a circle about 326 cm. in circumference. Straightest mandible of *M. americana* available, measured over comparable distance, equals a 15.5° arc of a circle about 192 cm. in circumference.

Referred material.—Proximal end of tarsometatarsus, coll. L. A. Mus. no. K3528 from same locality as type. Distinguished from members of the ciconiine subfamily by more proximal position of hypotarsus. In general characters similar to *M. americana*, differing from that species, however, in the following details:

(1) Ten per cent broader across proximal end than largest available specimen of *M. americana*.

(2) Large surface for muscle attachment distal to external cotyla at its posterior edge, facing directly laterally; this surface deflected posteriorly in *americana*.

(3) Posteriorly, region between articular facets and calcaneal ridges less excavated than in *americana* and traversed by faint, even ridge running from internal cotyla to muscle surface mentioned above (under 2); possibly comparable to this ridge in *americana* is a short, irregular, raised area extending from external cotyla past middle of bone, but not reaching muscle surface.

(4) Intercotylar prominence lower and broader than in *americana*. Height of prominence relative to breadth of articular facets, 91 per cent, as compared with 97 to 103 per cent in *americana;* breadth relative to height of prominence, 30.4 per cent, contrasted with 24 to 26.6 per cent in *americana*.

MEASUREMENTS OF TARSOMETATARSUS

Breadth prox. end across facets	Breadth of hypotarsus	Depth along external side	Intercotylar prominence	
			Height	Breadth
18.0 mm.	11.9 mm.	19.3 mm.	16.4 mm.	5.0 mm.

The carpometacarpus (L. A. Mus. no. K3529) may or may not belong with this species. Its size, 104.6 mm., is exceeded by large specimens of *M. americana* (Dr. Wetmore gives me a measurement of 110 mm. on one of his specimens), and there are no outstanding characters which distinguish the bone from the modern species. This element, however, is never very diagnostic; so the absence of distinguishing features is not necessarily important.

Discussion.—Several explanations present themselves regarding the occurrence of the three elements here discussed. It is significant that nowhere else in the Rancho La Brea excavations has *Mycteria* been found. The specimens in question, therefore, may represent a single individual, with exceptionally large beak, sturdy legs and small wings. On the other hand each element may have belonged to a separate individual, one of which, the carpus, may have belonged to *M. americana*, or all three to *M. wetmorei*. In the latter case the fossil species must have had considerable range in size, though perhaps less than it might seem from the extremes of large mandible and smaller carpus. I have noted in specimens of *M. americana* that the size of different elements does not vary in exact proportion throughout the skeleton.

The species name is chosen in honor of Dr. Alexander Wetmore, whose kindly interest and generous assistance in the matter of determining the correct status of this species have greatly facilitated its description.

Los Angeles Museum, Los Angeles, California, May 4, 1935.

FROM FIELD AND STUDY

A Note on the Color of the Eye of the Bush-tit.—During the past several years attention has been called to the two types of eye coloration in *Psaltriparus minimus*. It has been supposed by one writer that dark eyes and light eyes occur independently of age, sex, or season, by another that the eyes of adults are light and those of young dark. Still a third believes the opposite to be true, namely, that juveniles are light eyed and the adults dark. My own experience has been so uniformly different from all of these that the following note is submitted.

All male Bush-tits collected and prepared by myself since 1914 (I believe without exception) have had dark eyes regardless of age or season. Similarly, all females, regardless of age or season, have had light eyes. I do not for a moment contradict the direct statements of the very competent observers who have already published notes on this subject, but in the hundred-odd specimens which have been prepared since I first noticed the sex differences (in the subspecies *plumbeus*) in 1914, there have been no exceptions that I can recall. This experience includes the subspecies *californicus, plumbeus,* and *cecaumenorum.* Differing opinions are offered by Grinnell and Storer (Animal Life in the Yosemite, 1924, p. 580), the Micheners (Condor, 30, 1928, p. 133), and Swarth (Proc. Calif. Acad. Sci., ser. 4, 18, 1929, p. 344).—A. J. VAN ROSSEM, *San Diego Society of Natural History, Balboa Park, San Diego, California, June 25, 1935.*

Some Observations on the Feeding Habits and Eye-shine of the Poor-will.—If one climbs to the summit of Ben Lomond in the Santa Cruz Mountains, California, and looks off toward Monterey Bay he can trace the outlines of an ancient inlet by the line of sand dunes which lie between the mountain top and the bay. These dunes are partly clothed by oaks and knob-cone pines, yellow pines, manzanita, spiraea and bush-poppy. They form a marked contrast with the valleys filled with redwoods, Douglas fir and madrones and also with the mountains which rise above the dunes and are densely wooded with these same trees of the humid coast belt.

Through these sandy hills a road was cut a few winters ago to serve as a detour during the construction of a bridge over the San Lorenzo River on the line of the main highway which runs from Santa Cruz to the Big Basin. With the completion of the bridge, the sandhill road became a fairly unfrequented road of the kind so useful to the bird watcher.

On the evening of August 12, 1934, my husband and I were enjoying an evening drive over this pleasant by-road when a bird fluttered up just in front of the car. A few rods farther on a bird perched on the ground at the side of the road and remained there quietly while we passed. When we reached the bottom of the hill we turned back to try to get another look at what I thought must be a Poor-will (*Phalaenoptilus nuttallii californicus*). Almost immediately our attention was attracted to a brilliant spot of light a hundred yards ahead. We stopped and I advanced with a flashlight to ascertain the source of the light which was the color of a red-hot coal. When I was about fifteen feet away a bird flew up from the spot, circled over the adjacent meadow and alighted on an electric pole just above my head. After a few seconds it flew again and disappeared in the distance.

Using this eye-shine as a clue and adjusting our lights for distance, we drove slowly up the hill and soon spotted the red-hot coal again. This time we proceeded slowly and stopped twenty feet from the bird. To our surprise the Poor-will began to catch moths in the area lighted by the car. Even after the bird became invisible as it left the roadway we could still see the eye-shine.

A quarter of a mile farther on, the telltale light appeared again, and when we stopped, the bird came so close that the hood of the car prevented us from seeing it. Once it remained at the side of the road while we passed and once it allowed me to approach on foot to within six feet.

The next evening we went out "poor-willing" again. No birds were seen during early twilight, but when it was almost dark the light appeared at the side of the road as before. If we turned out the headlights and I approached with a flashlight the Poor-will refused to allow me to come nearer than ten feet. But if we remained in the car with the headlights turned on, it continued to feed as long as we cared to remain. We could not determine whether it was always the same bird which re-

appeared at different points along the roadway or whether it was perhaps a family group. Our experience the first evening made us suspect that there were more than one bird.

Our next opportunity to visit the region came on September 1 and 2, when no Poor-will was seen. This spring we have taken two evening drives on the sandhill road. The first one, on May 3, was without result but the second on May 22 was more successful. After having driven over the hill and back three times we were returning home with a negative verdict when a Poor-will fluttered across the road just in front of our windshield. Returning to the spot we got the eye-shine for a split second as the bird came into view around a curve. But it was headlight shy and flew the instant the light struck. However, these two observations led me to conclude that the birds probably nest on this sandy hill.

In August numberless moths were flitting in front of our headlights, but in May moths were few and far between. Whether it was this scarcity which led to the difference in behavior or whether it was the secretive instinct of the breeding season I cannot say. It is even possible that in August we were seeing young birds not yet wise enough to recognize the danger attendant upon too great familiarity with the automobile.

As I said before, the eye-shine was the color of a live coal. Also the eye looked very large in proportion to the size of the bird. Not once did we get the reflection from both eyes at the same time; nor did we hear any sound either vocal or mechanical in connection with its flight. So long as the bird perched on the ground the spot of light was motionless and showed no turning of the head from side to side.

After having known Poor-wills for many years only from the call, it was a distinct pleasure to see the bird in action and to learn something at first hand concerning its habits.—AMELIA SANBORN ALLEN, *Berkeley, California, May 23, 1935.*

Glaucous Gull on the British Columbia Coast.—At Departure Bay, near Nanaimo, Vancouver Island, during the month of March, 1928, and during the period February 25 to March 25, 1929, one or more Glaucous Gulls (*Larus hyperboreus*) was encountered almost daily; 5 were seen on March 28, 1928, and 3 were in sight at one time on March 20, 1929. The total number observed was 12 in 1928 and 10 in 1929. All were young birds in various stages of immaturity. So far as I am aware no adult Glaucous Gulls have been reported from British Columbia. In the totals given, which are estimated, allowance has been made for individuals which might have been seen more than once; but, as a matter of fact, many of these birds possessed some character of plumage which served to identify them individually. In no instance was a bird so distinguished seen more than once, a fact which points to their being transients. Invariably they were among the large flocks of Glaucous-winged Gulls that had been attracted by local spawnings of herring.

At first, mistakes in identification were made, examples of immature *glaucescens* with bleached primaries and light-colored backs (also bleached) being mistaken for immature *hyperboreus*. But on examining specimens of the latter a character was noted which afterward served as an identification mark in the field. I refer to the coloration of the bill, which in immature birds is ivory, lightly shaded with pale yellow or vinaceous, except for the terminal one-third which is abruptly dusky. This holds good with all but one of the immature specimens of the species I have examined. In the case of *Larus glaucescens*, birds of the year have a uniformly dark bill, while in older birds the otherwise light-colored bill is clouded with areas of dusky purple that contract as age progresses. Never, so far as I am aware, does there occur in this species the definitely bi-colored bill characteristic of immature *hyperboreus*.

The exception noted is a male taken on March 28, 1928. This specimen apparently is in the third winter plumage, the yellow-shafted primaries are white, secondaries and tertials largely drab gray, the unmarked rectrices pale ecru drab with white edges, and the mantle chiefly pale neutral gray. This is the oldest of five specimens collected. The coloration of the bill while fresh was ivory and pale vinaceous blotched with benzo brown and with a subterminal, irregular blotch of dusky extended along tomia to a point below the nostril. This particular color-combination is common in *Larus glaucescens* of similar age. The possibility of this specimen being a hybrid between *Larus hyperboreus* and *Larus glaucescens* has been considered.

On March 14, 1929, I was concealed near the edge of a cliff watching a flock

of Glaucous-winged Gulls on the water and on the beach a hundred feet below, when a large gull with pale-colored mantle and white primaries alighted among them. Swimming about in constant activity it frequently elevated its wings and I was startled to see (through 6X binoculars) that on the two outermost primaries of each wing about four inches from the top were dusky areas conspicuous against the otherwise immaculate surface of these feathers. These markings could be detected also when the wings were folded. The tail was pale fawn-color, faintly mottled, this and the streaked head being the only indications of immaturity noted. The mantle was pale bluish-gray. This bird moved about on the water for five minutes or so; then, taking wing and circling several times over the flock of gulls below, it passed within twenty-five yards of my hiding place, thus providing a different aspect of the wings from that obtained while the bird was at rest. It clearly was observed that the dusky wing markings were not an extraneous stain such as contact with crude oil might have caused. After alighting on the water again and resting there for a short time the bird again arose and flew to a small reef 200 yards away. There it could be seen, conspicuously large and light-colored among a gathering of Glaucous-winged Gulls, with head relaxed between the shoulders as if ready for an extended rest. Anxious to secure this specimen I made haste to return in a boat with my gun, but a fisherman just ahead of me put the gulls to flight and I never saw the bird again, although for a week afterwards each gathering of gulls was carefully scanned.

At the time, it was thought, and I still am of the opinion, that the bird in question answered to the description of the Nelson Gull, *Larus nelsoni*; but lacking the proof there is no intention of recording it as such.—J. A. MUNRO, *Okanagan Landing, B. C., July 20, 1934.*

The English Skylark on Vancouver Island.—Sentiment for the homeland has prompted the transplanting of things that had somehow taken root in our hearts when years were longer and life was at the Spring. Maybe it is only a prairie flower, or a long-remembered race of beans that climbed to the skies on the old homestead and hung heavy with pods of infinite tenderness. Really, the writer, twice in the present planting season, has had offered him a handful of beans whose kind had been the family stay in lands remote, when grandfathers were barefoot boys and dutifully dropped the seeds for their sires to cover with the hoe.

But sometimes it is birds, whose nests clung to the thatched eaves or whose song filled the unforgettable summer days. There have been many attempts to perpetuate memories of the homeland by the introduction of these feathered friends into the transplanted settlements of our country, some of them succeeding measurably well, some of them too well. We are all familiar with the English Sparrow, which came whether he wished to or not and stayed whether we liked its kind or would have them hence. And more recently the European Starling, coming by request and connivance, has perched all over our eastern landscape and promises to be gone nevermore. In this connection we will be pardoned for a hint of sympathy with the Chinaman who may or may not have released the Crested Mynahs of the Orient in his gardens on the Fraser River delta. In his heathen heart may have stirred something of the same longings that fill the soul of the transplanted European.

Most of the many attempts to introduce the European song birds of romance and story into our land have resulted in failure, or but temporary success; this, dare we say, partly by reason of their finer spiritual qualities that ill adapt them to competition and strife in new surroundings. The English Skylark itself has failed in several instances where its introduction had been carefully and hopefully planned. In fact, from present knowledge of the matter, faithfully gleaned, the colonization of skylarks in the district about Victoria, B. C., is unique in its success—so far. For no other attempt at introduction of the bird into America has attained the goal of permanent residence. Perhaps the distinctively English countryside about Victoria and the evident sympathetic regard of the transplanted Briton for the skylark has made the bird feel more at home there than elsewhere on our continent. In some American minds and policies there is strong sentiment against mingling avifaunas, even though the introduction were safe and sane from a biological standpoint.

At any rate, about 100 pairs of English Skylarks (*Alauda arvensis*) were liberated on the southern end of Vancouver Island in the fall of 1903. Ten years

later a second lot of 49 birds was released in the same locality. And they seem to have come to stay; for we have found them apparently as common as any native bird in the districts about the low elevations known as Mount Tolmie and Mount Douglas. There we were privileged to wander through the lanes and across the meadows twice this spring, late in March and again in the present month of May. On both occasions we had no difficulty in sighting and hearing satisfactory numbers of skylarks, if satiation may be had of anything so new under the American sun and so pleasing to sense and storied memory.

The larks were there, rising from green meadows in circling flights of song; not an outpouring of clear-cut, voluble notes at Heaven's gate, as we had been led to anticipate, but an offering of trills and warbles as a bird rose to bear its song aloft and bring back another. There is nothing startling or vivid about it, but rather something of wistful cadence that is gained or lost with the shifting of the breeze or the ever changing height of the singer. We had been advised that the better view of the skylark's song flights might be had by lying on one's back in the sweet meadow grasses. This, we concluded, would be undignified, maybe unhealthy. So we listened, as did the peasant girl of the art studio offering, with mouth agape and heart athrill. Sometimes we lost the singer to vision, but never for certain the song, until the aerial vocalist dropped suddenly down to the grass again to assure his mate that he really meant it all.—THEO. H. SCHEFFER, *Puyallup, Washington, May 20, 1935.*

The Charleston Mountain Blue-fronted Jay at Castle Dome, Yuma County, Arizona.—During a week spent at Castle Dome, Yuma County, Arizona, for the purpose of collecting topotypical pocket mice for the San Diego Society of Natural History, a member of the writer's party, S. G. Harter, secured a Charleston Mountain Blue-fronted Jay (*Cyanocitta stelleri percontatrix*) on April 18, 1935. The specimen was submitted to A. J. van Rossem, who described *C. s. percontatrix* (Trans. San Diego Soc. Nat. Hist., VI, 1931, p. 328), and he identified it as of this form. The presence of this forest-inhabiting bird far from its normal habitat, in an arid, rocky, Lower Sonoran desert, is another example of individual wandering that is responsible for many unexpected records. This specimen, an adult female, is now number 17062 in the collection of the San Diego Society of Natural History.—LAURENCE M. HUEY, *San Diego Society of Natural History, Balboa Park, San Diego, California, June 17, 1935.*

Bush-tits "Shadow-boxing."—On the afternoon of March 6, 1935, I was told by my mother that two small birds had been pecking the glass of the double windows of the living room of her home in Buena Park, California. They had started in the early morning and had returned at frequent intervals during the day. I watched for a few minutes and the birds returned, proving to be Coast Bush-tits (*Psaltriparus minimus minimus*).

The lower halves of the windows are screened, but the upper halves are not, and several branches of a bignonia vine have grown across them only a few inches from the glass. These were used as perches by the birds as they pecked vigorously at their reflections in the glass. The tapping of their blows was surprisingly loud and could be heard throughout the house. Sometimes they fluttered against the glass, but usually they used the vines as perches while they delivered a rapid succession of blows at their supposed antagonists. Going outside, I found that from a distance of about fifteen feet the reflection of the birds was very clear, as the comparative darkness of the room made a mirror of the glass. From inside of the room I found that they paid no attention to my extended hand until it was within six inches of them.

The birds would retire to a lime tree a short distance from the house, feed a while, then fly to a large bignonia vine at the corner of the porch, then back to the windows and begin pecking again. Both birds engaged in the battle and I could see no difference in the intensity of their efforts. They kept it up until almost dark that evening.

The next day, and for many days, they were constant attendants at the windows. By March 21, it was noticed that most of the time only one bird came. On the afternoon of March 25, the single bird, presumably the male, came to the windows

several times and then was joined in the large bignonia vine by the mate, and copulation took place. Then they flew to the lime tree and from there to a pendant cluster of foliage at the end of a limb of a large eucalyptus tree and by doing so revealed the location of the nest which seemed to be almost completed. The nest was about eighteen feet from the ground and about one hundred feet from the windows and was well concealed in the foliage.

The single bird, and once in a while both of them, continued to give battle at the windows, but with diminishing frequency as their family cares increased. April 24, they were still feeding the young in the nest; but on May 2, the nest was found to be torn open and contained only an infertile egg. Crows were the probable depredators, but I do not know if they got the young Bush-tits or if the latter had safely left the nest. Neither parents nor young were observed at this time.

It seems worthy of note that such gregarious birds as Bush-tits should "shadow-box," and that, at first, the female should be as active in it as the male. The instinct to defend the selected territory during the nesting period must predominate over the instinct to flock together that is so conspicuous a part of the behavior of these birds during the rest of the year.—JOHN MCB. ROBERTSON, *Buena Park, California, May 5, 1935.*

Status of Toxostoma redivivum in the Rancho La Brea Fauna.—In connection with a comprehensive study of the skeleton in thrashers, I have had occasion to examine the cranial fragment of *Toxostoma* (no. 29515, Mus. Paleo. Univ. Calif.) doubtfully referred to *T. redivivum* by A. H. Miller (Univ. Calif. Publ., Bull. Dept. Geol. Sci. 19, 1929, p. 11).

Crania of the several species of the genus *Toxostoma* may be distinguished one from another by the position and character of the lateral ridge of the suprameatic process and by the consequent relative extent of the two areas which it separates—the "temporal fossa" and the suprameatic area. Only in *redivivum* and *dorsale* does the suprameatic area approximate the "temporal fossa" in width; these two species, however, may be distinguished readily by the much smaller cranium of *dorsale*. The specimen in question has the temporal region perfectly preserved on the right side, and it is indubitably of the *redivivum-dorsale* type. The brain case is sufficiently preserved to indicate its larger size, and there can be no doubt as to its identification as *redivivum*, which species thus may be assigned definitely a place in the avifauna of the Rancho La Brea Pleistocene.—WILLIAM L. ENGELS, *Museum of Vertebrate Zoology, Berkeley, California, June 20, 1935.*

Some Feeding Habits of the Western Sandpiper.—The Dumbarton bridge near Palo Alto, California, crosses the tidal flats in the southern part of San Francisco Bay. On either side of the bridge proper are long approach roads, leading across about three miles of mud flats and shallow water to the east and almost two miles of marshy ground and sloughs to the west.

On May 11 and 13, 1935, large flocks of Western Sandpipers (*Ereunetes mauri*) were seen on the asphalt pavement along the three miles of road east of the bridge (none was on the west approach road). Some of the flocks contained 200 or more birds. As the automobile approached each flock, the birds flew away together and at once returned to the road behind the car. In addition to the western sandpipers there were a few Brewer Blackbirds and Horned Larks feeding at the edge of the road or in the road. Feeding on the water were large numbers of Northern Phalaropes, and in the air were many Cliff Swallows. On June 17, about 200 Brewer Blackbirds were feeding along the road, mainly on the pavement.

The Western Sandpipers on the pavement were very active, making short runs here and there as they caught their food. We stopped to examine the pavement and found it teeming with brine flies (*Ephydra millbrae*). This is a sluggish fly which often moves only a foot or two when disturbed, and is easily captured. As no other insects were noted on the pavement it seemed certain that the sandpipers were feeding on this fly.

This conclusion was verified by stomach examinations made of two of the birds which had been killed by passing automobiles. All of the stomach contents seemed to consist of fly remains, although only a few of the flies in the stomach were sufficiently entire for certain identification. There was a thin scattering of sand mixed

with the stomach contents. On first seeing the sandpipers, we had thought they might be seeking gravel on the pavement, but we found that there was practically no loose gravel on the asphalt.

On the west approach road, where there were no sandpipers, flies also were practically absent, due perhaps to less water along the road here than along the east approach road. The absence of flies here seemed to explain the corresponding absence of sandpipers.

The stomach of a Cliff Swallow picked up on the road contained a mass of food which seemed to be identical with that in the sandpiper stomachs. It seems probable that the horned larks and blackbirds and phalaropes were also feeding on these flies, although evidence here is circumstantial. It would seem that the many blackbirds on the pavement on June 17 were almost certainly feeding on the flies. On the water where the phalaropes were feeding large numbers of these flies floated.

Although the two or three thousand sandpipers noted were practically all feeding on the pavement, the flies were more abundant in the grass and on the lumpy shore bordering the road. In one place on the shore the flies were so numerous that their wings made the ground appear glassy. Since food was abundant in all the habitats (pavement, grass, and lumpy shore) some other factor than presence of food seemed to be determining the habitat choice of the sandpipers.

In feeding, a sandpiper darted after the fly which it had started, seizing it where it lit a few feet away. The smooth pavement facilitated this sort of feeding activity, permitting the bird to run freely after the food and to keep it in sight. If the feeding ground were lumpy, running would be difficult and the bird might lose sight of the fly if it should light behind a lump. The habitat preference of the birds was definitely advantageous to its mode of feeding, suggesting that it was determined primarily by freedom of movement, and also by continuous visibility of prey.—ADOLPH MURIE, *Wildlife Division, National Park Service,* and H. D. BRUCE, *U. S. Forest Service, June 24, 1935.*

Magpie-jay Robs Nest of Derby Flycatcher.—Rarely have I observed any species of bird approach nesting sites of the larger tyrant flycatchers; and heretofore, the few that did venture near, were promptly driven off. While hunting near Puerto Humo, province of Guanacaste, Costa Rica, April 17, 1935, my attention was drawn to a large bird as it alighted on a large globular nest, set into top branches of a small acacia tree growing in a semi-wooded pasture. Approaching the site, the bird was recognized as a Magpie-jay (*Calocitta formosa pomposa*), and the nest as of the Derby Flycatcher (*Pitangus sulphuratus derbianus*). The jay was vigorously endeavoring to penetrate the interior of the nest, using both bill and claws. It may be remarked here that the genus *Pitangus* has the nest entrance on the side.

The quest of the jay was successful, for within three minutes it flew away with an egg speared on the bill. A pair of derbies sat during this period in nearby trees, uttering their "war-notes"; but only once did one of these probable owners launch an assault against the marauder, pecking the jay on the back of the head, which appeared to give the latter little discomfort.—AUSTIN SMITH, *Zarcero, Costa Rica, May 9, 1935.*

NOTES AND NEWS

The annual meeting of the American Ornithologists' Union will be held this year, October 21 to 24, at Toronto, Canada, under the auspices of the Royal Ontario Museum of Zoology. Mr. L. L. Snyder, of the staff of this Museum, is Secretary of the Committee on Arrangements, and from him information can be sought as to hotels, etc. The delightful autumn season, the intellectual profit from the programs, the social opportunities afforded, the frank hospitality of the Canadian people, are all features attested to by previous occasions of the sort. We advise attendance especially by bird students who have not before attended a Canadian meeting of the A.O.U. All those who have, need no urging.—J. G.

FAMILIAR BIRDS OF THE PACIFIC SOUTHWEST is the title of a new bird guide, by Florence V. V. Dickey, recently published

by the Stanford University Press (lvii + 241 pp., 102 colored illustrations, price $3.75). The specific aims of this guide should be fully understood to appreciate its service to bird students. It is addressed to the tourist, casual observer or comparatively uninformed nature student as first aid in making the acquaintances of birds. Dr. Casey A. Wood in the introduction expresses the hope that the user will be led to supplement his information gained from the book by turning to such sources as Hoffmann's "Birds of the Pacific States" and Mrs. Bailey's Handbook.

Simplification is the essence of the color and size key designed to "run down" species. This experiment sets a very difficult task of arranging many complexly differentiated birds by these two criteria. Inevitably there are pitfalls, but a thorough testing of the key persuades me that with respect to the more obviously marked common birds it usually will work for the beginner, as something more technical might not. Identifications by the key can be checked with the illustrations and the adequate descriptions of the species that follow. One is led to wonder why the Mountain (Bailey's) Chickadee is classed under sparrow size when the Rock Wren is grouped as a "small wren." The author includes only what she considers to be the more common birds. Omissions or inclusions, therefore, are difficult to appraise, as one must admit a personal factor in deciding what kinds merit inclusion. Yet I question the inclusion of the Large-billed Sparrow when the resident Belding Sparrow or the Western Savannah Sparrow might have been chosen as the racial representative of the Savannah sparrows.

This raises a point for which the author is to be highly commended, namely, the exclusion of subspecies. Only in the matter of form of the common name does the subspecies intrude its unwelcome confusion; for the A.O.U. Check-list with its illogical vernaculars is followed. However, the beginner will, for a time, probably be happily unconscious of the dilemmas in such a system, or lack of system, of common names. Certainly, Mrs. Dickey is not to be blamed for the faults of the official Check-list.

The accounts of species are devoted to non-technical descriptions with the comparative aspect prominent. Varied items of natural history, distribution and local occurrence are included. The facts are accurate and interesting. The contribution of Mr. A. J. van Rossem to these accounts is acknowledged.

The Donald R. Dickey photographs are by far the most spectacular feature of the book. These excellent works of photographic art have gained a justly deserved reputation of the highest order. That they should have been colored will be regretted by ornithologists familiar with the originals, who will see in the colored version a loss of vitality.

The book is well printed, in handy 5 x 7 inch size, convenient for field use, with flexible waterproof cloth binding. It is not a complete handbook, but as an initial aid and focus of interest it should be attractive to the elementary bird student.—A.H.M.

An "Abridged Check-list of North American Birds", based upon the Fourth Edition of the A.O.U. Check-list, can now be purchased for 50 cents from the treasurer of the A.O.U., W. L. McAtee, 3200 22nd St., Cherrydale, Virginia. The small size (3¼ x 5⅞ inches), and the circumstance that it is printed upon one side only, of a fairly good quality of paper, will make this list useful especially to collectors, for labelling and other purposes. The labor of compiling and proof-reading was performed chiefly by Alexander Wetmore of the United States National Museum.—J. G.

The Malheur Lake region of eastern Oregon once teemed with waterfowl and associated animal life, as attested to by many early reports of competent naturalists who visited it. Then came intensive exploitation of the land by the stockman—the practical exhaustion of all the natural resources including the water-supply—until a condition of almost complete desolation prevailed over the lake basin. The land became well-nigh valueless to man; and only as this stage had been reached did the opportunity come to reverse the processes—toward restoration of primitive conditions. Briefly, a "key" portion of the Malheur basin has been acquired by the Federal government, now to be administered by the Biological Survey as a wild-life sanctuary. This is a gratifying accomplishment, one to be credited, with enthusiasm, to the enterprise of Chief J. N. Darling and his staff. Conservation, on broad lines of definition, appears, indeed, to be in effect in an increasing number of directions.—J.G.

In these alphabetical days we suggest a good test for one's knowledge of organizations concerned with bird study;

Fig. 48. Henry W. Carriger, for forty years member of the Cooper Ornithological Club, and member of its Board of Governors from the date of the institution of that body; authority on bird-nesting in central California and author of many articles in the *Condor*.

namely, to expand the following initials into their full designations: COC, AOU, WOC, DVOC, NAAS, AAP, IOU, NOU, ECOC, NOC, MAS, MBC, NBBA, WBBA, SLBC, ASM, PNBMS, TOS, ASSV. The above are all American societies. How about these foreign ones: BOU, BOC, RAOU, RHCBO, SOP, SAOA, DOG, DVSV, SOMF, NOC, DOF, RSPB, AS, NOV ?—J.G.

There is one section of the ornithological field that shows as yet no sign of exhaustion. This concerns the subspecies question. In volume 1 of the *Auk* (1884, pp. 102, 197, 381, etc.) there appeared spirited discussion of one or another phase of this subject, by J. A. Allen, Elliott Coues, and others. And now, in the 52nd volume of the *Auk* (January, 1935, pp. 31-39), Witmer Stone presents "Some Aspects of the Subspecies Question." The "lure" that Dr. Stone points out as pertaining to that question is *there*, and doubtless contributions will recur far into the future. No modern worker who ventures to use the subspecies concept intelligently in his own writings can afford *not* to read this latest, most searching discussion, of Dr. Stone's; and said worker will profit still more if he will pursue the discussions back through the preceding 50-year period.—J.G.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

JUNE.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held on June 27, 1935, at 8:00 p. m., in Room 2003, Life Sciences Building, Berkeley, with 27 members and guests present and President Miller in the Chair. Minutes of the Northern Division for April were read, corrected and approved. Minutes of the Southern Division for May were read. The name of Mr. William H. Twisselman, 415 Capitol St., Salinas, Calif., was presented for membership by Mr. O. P. Silliman.

Mr. Joseph Grinnell reviewed and commended "The Hawks of North America," by John B. May. This book has just been issued under the auspices of the National Association of Audubon Societies. It presents a thorough and well illustrated summary of the economic values of these raptorial birds, and shows clearly by the maps the alarming shrinkage in territory of certain of the species once wide-ranging.

Miss Selma Werner described the wanton murder of a duckling on one of the lakes of Golden Gate Park by a female Mallard, whose own four young were close by, and asked for a possible motive. The Chairman said he had once seen a half-grown Cormorant so dealt with when, in scrambling down a cliff, it came within reach of a sitting adult of the same species. He thought that in both instances the act resulted from a maternal instinct to protect young from an approaching threat of danger.

Mr. Eric C. Kinsey told of his trading about of broods of young Black Phoebes into alien nests—with only happy results. In one instance nearly-grown young were substituted for fresh eggs. These nestlings were accepted first by the male foster parent; when the female saw them being fed she followed the example set by the male. Mr. Kinsey told also of the behavior of Western Bluebirds in his aviary.

Mrs. Kinsey said that she found that the young bluebirds were being cared for by the male parent only. The Secretary quoted a letter from a correspondent in San Luis Obispo County which recorded a similar experience with Western Bluebirds. The Chairman read two notes submitted by Mr. Ben C. Gerwick, Jr., one recording an Olive-sided Flycatcher noted in Berkeley on June 1 and the other, Ash-throated Flycatchers seen near San Pablo Reservoir on May 24. Mr. G. S. Thompson reported the expectant lingering of Linnets about his Bartlett pear tree, which last year supplied abundant fruit, but which this year holds forth only a single pear. Mrs. J. R. Davis gave an instance of unusual fearlessness in Brown Towhees, which habitually entered an open window when they failed to find their usual supply of crumbs on the window-sill.

Mr. Alden Miller's much appreciated account of birds observed about his camp in an aspen grove on the Pine Forest Mountains of Nevada closed the evening's reports.

Adjourned.—HILDA W. GRINNELL, *Secretary.*

STANFORD CHAPTER

APRIL.—The monthly meeting of the Stanford Chapter of the Cooper Ornithological Club was called to order by President Rich on the evening of April 4. The minutes of the March meeting were approved as read.

Mrs. Hackley stated, for the information of the Bay Shore Refuge Committee, that Mr. Roydon, of the Mackay Radio and Telegraph Company, is to leave his post here at Palo Alto in the near future. She advised the Committee to get in touch with him before he leaves. Chairman Price responded that as far as he had investigated, the plans for a bird refuge were unsatisfactory, and the whole matter should be dropped. Mrs. Borchert stated that the fact that she had found small birds in the proposed refuge area which had been shot, apparently by small boys, led her to believe that protection of some sort was quite necessary. Dr. Linsdale of the University of California stated that there was a distinct need for a bird refuge on the marshes, provided it could be made somewhat permanent. The probability of permanence has become an important consideration, and it was suggested by the Chair that the original proposal by the City of Palo Alto, with the cooperation of the Mackay Radio and Telegraph Company, be investigated, with an attempt made to determine what ideas were entertained in the minds of both parties with regard to the permanence of the refuge.

A change of meeting date was proposed by Dr. McCracken in order to make it more convenient for visiting speakers to attend the meetings. After some discussion, it was voted and carried that the meeting date should be on the second Friday of each month, except as necessary, at the discretion of the president and the secretary.

A member asked if the second week in April was an early date for a Bush-tit's nest with young. Dr. Linsdale replied that he thought it was an early date, and that the previous week-end he had seen seventeen Bush-tits' nests being built at Point Lobos. A Meadowlark's nest with young was reported on the Stanford Campus for the fourth week of March. A California Quail with some white feathers on the top of the head was reported from the Stanford Campus by John Price.

President Rich then introduced as speaker for the evening, Dr. Jean M. Linsdale of the University of California, who spoke on "The Natural History of the Magpies." Dr. Linsdale sketched the distribution of the magpies throughout the world, and proceeded to tell many of the interesting facts of the life history of this bird as revealed by careful study. His studies were centered about the Yellow-billed Magpie which is completely confined in its distribution to this State.

Adjourned.—WILBUR V. HENRY, *Secretary.*

MAY. — The monthly meeting of the Stanford Chapter of the Cooper Ornithological Club was called to order by President Rich on the evening of May 9. The minutes of the previous meeting were approved as read. There were no reports from committees. The Chair reminded those present of the necessity of choosing officers for the succeeding year on the occasion of the June meeting. A motion carried for the Chair to appoint a nominating committee of three to determine proper candidates for office.

In the field of literature, Dr. Rich reported the availability of P. A. Taverner's "Birds of Canada," published by the National Museum of Canada at a price of $2.00. The suitability of this work for the use of local students was discussed. "The Hawks of North America" by Dr. John B. May, published by the National

Association of Audubon Societies at a price of $1.25, was also mentioned. The appearance of a folio of bird pictures made by Dr. Gayle B. Pickwell at a price of $6.00 was mentioned by Dr. Rich. Inquiry was made by a guest as to the probable time of the appearance of a book published by the Stanford Press containing photographs by the late Donald R. Dickey and dealing with southern California birds. Dr. Rich replied that the book was to be published this summer.

Mr. John Price reported 500 nests of the Brandt Cormorant on Bird Rock off the Seventeen Mile Drive, which he visited on May 5. He said that all stages of nesting were represented at the time of his visit.

President Rich then introduced as the speaker for the evening, Mr. John B. Price of Stanford University, who showed several reels of motion pictures dealing with various California birds. New inclusions in the pictures have extended the interest and value of his work.

Adjourned.—WILBUR V. HENRY, *Secretary.*

SOUTHERN DIVISION

MAY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, May 28, 1935, at 8:00 p. m., at the Los Angeles Museum, Exposition Park, Los Angeles, with President Cowles in the Chair and forty members and guests present. Minutes of the Southern Division for April were read and approved. Minutes of the Northern Division for April were read. The application for membership of Leonard William Wing, University of Wisconsin, New Science Building, Madison, Wis., proposed by J. Grinnell, was presented.

On motion by Mr. Willett, seconded by Mr. Michener, the Chair appointed Dr. Loye H. Miller and Mr. J. L. Partin to represent both divisions of the Cooper Club at the meeting of the Affiliation Committee, Pacific Division, A. A. A. S., to be held on Wednesday evening, June 26, at the University of California at Los Angeles. An invitation to attend their 29th Annual Meeting, Thursday, June 6, extended to the Cooper Club by the California Audubon Society, was read.

Mr. Willett spoke regarding the consummation of the incorporation of the Cooper Ornithological Club and read the minutes of the meeting of the Board of Governors held Friday evening, May 24; the minutes of the meeting of the Board of Directors held Saturday morning, May 25; and the minutes of the special meeting of the Board of Governors held on Saturday evening, May 25.

Mr. Pierce gave a short impromptu review of the program of the Tenth Annual Meeting of the Cooper Club. He also told of the scarcity of bird life seen on his recent trip to Berkeley after leaving the Ridge Route until over Pacheco Pass to Gilroy, and of his surprise at the great number of dead Horned Larks on the boulevard—112 were counted in a distance of three miles. The possibility of death to the Horned Larks and to other bird life being caused by the increased speed of automobiles, also that many of the dead are young birds, was brought out in discussion. President Cowles reported having seen literally thousands of Horned Larks in Antelope Valley this year and that they are apparently breeding everywhere.

The nest of a Black-chinned Hummingbird built from the down of sycamore leaves, on an oak branch and with the outside of the nest decorated with lichens typical of the Anna's nest, was shown by Dr. Parsons. The nest was fashioned on an old one of a previous year, and a leaf of the oak had been utilized for one side of the nest. A typical Black-chinned's nest of sycamore down, and a typical lichen-covered nest of the Anna, were also exhibited.

Mr. Glassell, who had just returned from a trip extending to the Gulf of California, reported having noticed many Red-tailed Hawks nesting; seeing quite a few mergansers, some Heermann Gulls, and a few terns, grebes, and Lark Buntings. Other members gave recent nesting and sight records of various water birds.

Mr. Robert T. Moore was kind enough again to read his paper on "The Protection and Conservation of the Zoological Life of the Galapagos Archipelago." The first formal announcement of the passing of this important milestone in the world-wide conservation of bird life was made at the Tenth Annual Meeting of the Cooper Ornithological Club. Mr. Moore called attention to the fact that one hundred years ago, Charles Darwin made his visit to the Galapagos Islands, from which developed the Darwinian theory of evolution. It was thus particularly fitting that this should be the year when steps should be taken for the preservation of the remarkable and very valuable life on those islands. Dr. V. M. Egas, former Ecuadorian Consul to the United States, who

has given splendid assistance in the furtherance of plans for the protection of Galapagos wildlife, was present as a guest and courteously responded when introduced by Mr. Moore.

Meeting adjourned. — LAURA B. LAW, *Secretary.*

JUNE.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held Tuesday, June 25, 1935, at 8:00 p. m., at the Los Angeles Museum, Exposition Park, Los Angeles. In the absence of President Cowles, Vice-President Little occupied the Chair, with 35 members and guests present. Minutes of the Southern Division for May were read and approved. The applications for membership of Mr. Fred Richter, 4282 La Salle Avenue, Culver City, California, proposed by George G. Cantwell, and of Mrs. C. G. Fairchild, Tule Lake, California, proposed by Carl Richardson, were presented.

Dr. Loye Miller mentioned having read in a current issue of Science that the President of Ecuador has permitted the establishment of a monument on the Galapagos Islands which is to take the form of a research institution to be maintained by endowed funds, and that a lava shaft is to be erected as a memorial to Charles Darwin. Mr. Robert T. Moore said it was his understanding that a special issue of stamps by the Ecuadorean government was to be one of the methods of raising funds for the proposed research institution.

A dried specimen of what appeared to be a male Allen Hummingbird was shown by Dr. J. J. Parsons. This bird had been given to him and was said to have been found in Monrovia last year dead on the nest where it had been seen sitting, on several occasions, and that eggs were under the bird when found. In corroboration of the statement made by Dr. Parsons last month, regarding the Black-chinned Hummingbirds using lichens to decorate their nests, Mr. Moore told of having in his collection a female hummingbird and the lichen covered nest on which she had brooded, and that the bird appeared to be a typical female Black-chinned. Mr. Moore further stated that he had found no stability in three of the four characters generally used for distinguishing between the female Black-chinned and the female Costa. He had, however, discovered two characters which were quite stable and that he had not seen mentioned in any literature, one with regard to the slope of the six inner primaries and the other relating to the width of the web of the fifth primary.

Mr. Chester C. Lamb, in remarking that one rarely hears of the Knot being reported from the coast of California, said that during early May, 1934, he saw thousands of Knots along the coast of Sinaloa. In the fall migration none was seen. He also stated that 90 miles across the Gulf on the coast of Lower California one finds no Black Vultures, while on the Mexican coast they occur in great numbers, as do the Grackles.

The return of a pair of Sparrow Hawks to nest on the Merritt Building, 8th and Broadway, Los Angeles, was reported by Mr. Howard Robertson.

For observation of plumage and behaviorism, Mr. Wright M. Pierce exhibited a six weeks old Prairie Falcon that he had taken as a fledgling from a nest on the desert and raised. The bird was much tamer than the one Mr. Pierce raised and exhibited last year.

Mr. A. Brazier Howell, of Baltimore, Maryland, a visiting member, when introduced by the Chair spoke of his interest in bird conservation and gave quite a vivid account of the slaughter of thousands of hawks during fall migration in the Kittatinny Mountains in Pennsylvania. Mr. Howell said that some 2200 acres were being purchased in an endeavor to protect the hawks and to maintain an inviolate sanctuary for both birds and mammals. In answer to questions asked regarding the duck situation and the possibility of securing federal authority for a closed shooting season, Mr. Howell had nothing favorable to report.

Mr. John McB. Robertson, the only member from the Southern Division to enjoy the field trip planned for the Tenth Annual Meeting held in Berkeley last month, gave a short account of the pleasurable time had during the visit to Mr. Kinsey's aviary, where 41 species of native birds are living and several of them nesting, and of the many interesting birds seen as the field trip continued on to Point Reyes.

Mr. W. Lee Chambers was heartily sustained in his suggestion that it was none too soon for the Southern Division to begin preparations for the Eleventh Annual Meeting; the Chair appointed Messrs. Wright M. Pierce, J. R. Pemberton, Loye H. Miller, and Robert T. Moore as a Ways and Means Committee for the 1936 program.

Adjourned.—LAURA B. LAW, *Secretary.*